

J Series

2.0, 2.4, and 3.0kW

Service Manual

020-100739-01

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NOTICES

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REGULATORY

The product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. The product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the users own expense.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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Canadian manufacturing facility is ISO 9001 and 14001 certified.

GENERAL WARRANTY STATEMENTS

For complete information about Christie limited warranty, please contact your Christie dealer. In addition to the other limitations that may be specified in Christie limited warranty, the warranty does not cover:

- a. Damage occurring during shipment, in either direction.
- b. Projector lamps (See Christie separate lamp program policy).
- c. Damage caused by use of a projector lamp beyond the recommended lamp life, or use of a lamp supplied by a supplier other than Christie.
- d. Problems caused by combination of the product with non-Christie equipment, such as distribution systems, cameras, video tape recorders, etc., or use of the product with any non-Christie interface device.
- e. Damage caused by misuse, improper power source, accident, fire, flood, lightning, earthquake or other natural disaster.
- f. Damage caused by improper installation/alignment, or by product modification, if by other than a Christie authorized repair service provider.
- g. For LCD projectors, the warranty period specified applies only where the LCD projector is in "normal use." "Normal use" means the LCD projector is not used more than 8 hours a day, 5 days a week. For any LCD projector where "normal use" is exceeded, warranty coverage under this warranty terminates after 6000 hours of operation.
- h. Failure due to normal wear and tear.

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Please see the Maintenance section for specific maintenance items as they relate to your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.

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1 Introduction

This manual provides information and procedures for servicing the J Series 2.0, 2.4, and 3.0kW projectors. This manual assumes a familiarity with J Series functionality.

Only accredited Christie technicians who are knowledgeable about the hazards associated with high-voltage, ultraviolet exposure, and the high temperatures generated by the projector lamp are authorized to assemble, install, and service projectors.

1.1 Safety Warnings and Guidelines

- ⚠ WARNING** Always power down and disconnect power sources prior to servicing.
- ⚠ WARNING** High voltages may be exposed! Always unplug the projector prior to disassembly.
- ⚠ WARNING** Christie accredited service technicians required! All module replacement procedures must be performed by qualified service technicians.
- ⚠ WARNING** Non-insulated dangerous voltages may be exposed! Always disconnect from AC prior to disassembly.
- ⚠ WARNING** Observe all electrostatic precautions! Use a grounded wrist strap when handling electronic assemblies.
- ⚠ WARNING** Allow lamp and projector to cool down! Once you have turned off the projector, allow the cooling fans to automatically turn off before disconnecting from AC and opening the projector. This takes approximately 15 minutes.

1.1.1 Repair Cautions

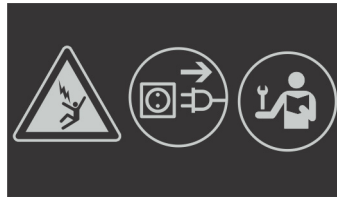
- ⚠ WARNING** Ensure the projector is disconnected from AC power before you start testing, removing, or installing modules.
- ⚠ WARNING** Do not operate the projector with any internal parts removed. If for testing purposes, you must operate the projector without the lid and/or lamp door, ensure to wear UV glasses and stand well back from the projector at all times.

1.1.2 General Precautions

⚠ DANGER HIGH BRIGHTNESS. Never look directly into the projector lens. The extreme high brightness can cause permanent eye damage.



⚠ DANGER Always power down the projector and disconnect all power sources before servicing or cleaning.



⚠ DANGER FIRE HAZARD. Keep hands, clothes and all combustible material away from the concentrated light beam of the projector. Position all cables where they cannot contact hot surfaces or be pulled or tripped over.

⚠ WARNING All installation and maintenance procedures must be performed by a Christie accredited service technician.

⚠ WARNING Projector must be operated in an environment that meets operating specifications, as listed in [Section 6 Specifications](#).

⚠ WARNING The American Conference of Governmental Industrial Hygienists (ACGIH) recommends occupational UV exposure for an 8-hour day to be less than 0.1 microwatts per square centimeters of effective UV radiation. An evaluation of your workplace is advised to assure employees are not exposed to cumulative radiation levels exceeding the government guidelines for your area. Be aware that some medications are known to increase sensitivity to UV radiation.

⚠ WARNING Double Pole/ Neutral Fusing In Power Supply. Disconnect all power sources before servicing the power supply.

1.1.3 AC /Power Precautions

⚠ WARNING Use only the AC power cord supplied. Do not attempt operation if the AC supply and cord are not within the specified voltage and power range. Refer to the license label on the back of the projector or *Section 6 Specifications* for rated voltage and power.

⚠ WARNING The projector is equipped with a 3-wire plug with a grounding pin. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to have the outlet replaced. **NEVER** defeat the safety purpose of the grounding-type plug.

⚠ WARNING Do not allow anything to rest on the power cord. Locate the power cord where persons walking on it or objects rolling over it cannot damage the cord.

1.1.4 Lamp Precautions

Do not operate the lamp for more than the warranty limit; risk of the lamp shattering increases as a result of changes in the quartz glass that occur with use. Operation beyond the lamp warranty limit also significantly reduces brightness output.

Never attempt to access the lamp while the lamp is ON. After turning the lamp OFF, it is crucial that you wait at least 5 minutes before handling the lamp. This provides sufficient time for the lamp cooling fans to properly cool the lamp. For all other precautions critical for safe removal and replacement of the lamp, refer to *4.5.15 Remove and Replace the Lamp*.



⚠ WARNING Never attempt to remove the lamp housing directly after use. The lamp is under great pressure when hot and may explode, causing personal injury and/or property damage.

⚠ WARNING Use only lamps supplied by Christie.

Lamp Replacement Procedure

⚠ WARNING Select the correct wattage lamp supplied by Christie. See *Table 4.2*. Read the lamp replacement procedure in its entirety before proceeding.

⚠ WARNING A Christie accredited service technician must perform lamp replacement.

⚠ WARNING Cool the lamp completely, then lift the lamp by the handle only.

⚠ WARNING Do not touch the glass window of the lamp. Fingerprints left on the surface can lead to an intense accumulation of heat called a “hot spot,” which could potentially result in lamp failure. It is recommended you wear a face shield when working with the lamp.

2 Projector Maintenance

Read this section in its entirety and understand all warnings and precautions before performing projector maintenance.

2.0.1 Cleaning Projector Components

COMPONENT	PREVENTATIVE MEASURES	HOW TO CLEAN
Lamp	Wear protective clothing approved by Christie, and handle by the ends only. Never grip the glass portion of the lamp. NOTE: Any fingerprints will reduce output quality and shorten lamp life.	Remove fingerprints or dirt with pure isopropyl alcohol and a clean lint-free cloth.
Illumination optics system, general	Never touch or blow on exposed components. Wear nitrile gloves.	Use ionized pneumatic guns only. Wear a ground strap and observe anti-static protocols when servicing projector components.
Integrator	Never disassemble the integrator module.	Remove visible particles with clean, dry deionized air.
Illumination system, internal lenses/prisms	Never touch or blow on interior components. Wear nitrile gloves. NOTE: Normally the internal parts should not be accessed.	Remove particles with clean, dry deionized air. Then, if necessary, wipe in a single direction with a clean high quality optical cloth.
Light engine components	Never touch or blow on components. Use nitrile gloves.	Remove particles with clean, dry deionized air. If necessary, use a Q-tip with pure isopropyl alcohol on the glass surface. Never touch the imaging panels. The green imaging panel has a glass behind it.
Light engine, DMD panels	Never touch or blow on the panels.	Remove particles with clean, dry deionized air.
Projection lens	To avoid the risk of scratching the lens, only clean the lenses if absolutely required. A small amount of dust on the lenses does not effect picture quality.	Use filtered compressed air to remove dust and a clean lint-free cloth. Use a DRY soft cotton cloth. Rub gently in a circular motion.

2.0.2 Inspect Ventilation

Vents and louvers in the projector covers provide ventilation, both for intake and exhaust. Inspect the projector regularly to ensure these openings are not blocked or covered. Verify the projector is not installed near a radiator, heat register, or within an enclosure. To ensure adequate airflow around the projector, keep a minimum clearance on the left, right, and rear sides of the projector.

2.0.3 Inspect Power Supplies and Power Cords

⚠ WARNING Do not operate the projector if the AC supply is not within the specified voltage and power range.

⚠ CAUTION An appropriate rated power cord for the country of use is provided with each projector. Ensure that you are using a power cord, power plug, and socket that is rated for your location.

You should never open or repair a failed power supply. If a power supply fails, contact Christie support and request a replacement.

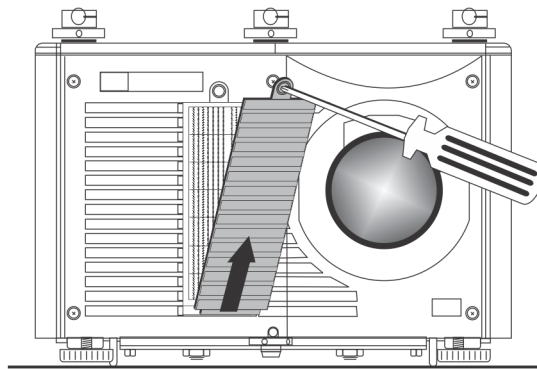
The use of accessories that are not approved by Christie can result in fire, shock, or personal injury.

2.0.4 Replace the Filter

⚠ CAUTION Use only Christie approved filters.

You should check the condition of the air filter every 1000 hours or sooner if you are operating the projector in a dusty or dirty environment. The filter is located on the front of the projector beside the lens.

1. Loosen the lock screw at the top of the filter door. Lift the door away from the projector.



2. Remove the old filter and insert the new filter with the directional arrows pointing into the projector.
3. Replace the filter door and tighten the lock screw.

2.0.5 Inspect and Clean Optics

Unnecessary cleaning of optics can increase the risk of degrading delicate coatings and surfaces. Always wear nitrile gloves.

2.0.6 Clean the Lens

A small amount of dust or dirt on the lens has minimal effect on image quality. To avoid the risk of scratching the lens, clean only if absolutely necessary.

Remove Dust:

1. Brush most of the dust off with a camel hair brush or use a dust-free blower.
2. Fold a microfibre cloth and wipe the remaining dust particles off the lens with the smooth portion of the cloth that has no folds or creases. Do not apply pressure with your fingers. Instead, use the tension in the folded cloth to remove the dust.
3. If significant dust remains on the lens surface, dampen a clean microfiber cloth with lens cleaning solution and wipe gently until clean.

Remove Fingerprints, Smudges, or Oil:

1. Brush most of the dust off with a camel hair brush or use a dust-free blower.
2. Wrap a lens tissue around a swab and soak it in lens cleaning solution. The tissue should be damp but not dripping.
3. Gently wipe the surface using a figure eight motion. Repeat until the blemish is removed.

3 Troubleshooting

This section provides information and procedures for resolving common projector issues. If you cannot resolve a projector issue, contact Christie technical support.

Before you suspect a performance problem:

1. Ensure the projector is plugged in.
2. Ensure the power switch is in the ON position.
3. Ensure the correct voltage is available for your model projector.
4. Check the status display window for error codes.
5. Verify that external devices connected to the projector are operating correctly.
6. Check source reliability. Switch sources if possible.
7. Ensure cables are connected and not damaged.

3.0.1 Contact Technical Support

You can contact Christie technical support by telephone or by email:

Telephone: 1-800-221-8025

Email: tech-support@christiedigital.com (email support is only available in North America)

3.1 Temperature Sensor Locations

Table 3.1 - Temperature Sensor Interface

ID	Interface	Location
2		Projector exhaust temperature
3	I2C	Projector air intake temperature
9	Single Wire	Located on the main panel driver and monitors the panel driver board temperature
10	Single Wire	Located on the image processor board
13	Single Wire	Located on slot 1 option card and monitors option card temperature
14	Single Wire	Located on slot 2 option card and monitors option card temperature
15	Single Wire	Located on slot 3 option card and monitors option card temperature
16	Single Wire	Located on slot 4 option card and monitors option card temperature

3.2 Projector LED Status Indicators

The color of the keypad key indicates the state:

- Amber indicates functionality that affects the displayed image.
- Blue indicates functionality that does not affect the displayed image.
- Off—the key is disabled.

Table 3.2 - Startup Time Chart

Time (approx.)	Rear Status LEDs				LCD Display
	LAMP-1	COMM	STATUS	SHUTTER	
0 seconds	Amber	Amber	Amber	Amber	“Please Wait”
30 seconds	Off	Off	Off	Off	“Please Wait”
40 seconds	Off	Off	Off	Off	“Initializing Projector”
1 minute & 40 seconds to 1 minute & 50 seconds	Off	Off	Off	Off	“Initializing Projector”
1 minute & 50 seconds to 1 minute & 55 seconds	Off	Off	Amber	Amber	“Standby mode press and hold power to turn on projector”

3.3 Retrieve Projector Error Messages

3.3.1 How To Obtain an Error Log

Always run the interrogator before power cycling the projector, otherwise important diagnostic files will not be available. Make sure the projector is in its failed state while the interrogator is running.

- To retrieve diagnostic files:
 - Open a web browser window and enter the IP address of the projector into the address bar.
 - Click a language in the **language** list.
 - Enter ‘service’ for the **user name** and **password**.
 - Click **Admin** on the **Properties** tab.
 - Click **Interrogate**.
 - Click **Save**.

3.3.2 Problems to Save an Error Log

After performing an interrogator download, you will be prompted to save the file. If you are not being prompted to save the file you will need to set Internet Explorer to automatically open and save the file:

- Disable the pop-up blocker:
 - Open Windows Explorer.
 - Click **Tools > Pop-up Blocker > Pop-up Blocker Settings**.
 - Click **Remove all**.
 - Click **Close**.

2. Enable File Download Prompting
 - a. Open Windows Explorer.
 - a. Click **Tools > Internet Options**.
 - b. Click **Security** on the **Properties** tab.
 - c. Click **Internet** in the **Select a zone to view or change security settings** list.
 - d. Click **Custom Level**.
 - e. Select **Downloads > Automatic prompting for file downloads > File download > Enable**
 - f. Click **OK**.
 - g. Click **Local intranet** in the **Select a zone to view or change security settings** list.
 - h. Click **Custom Level**.
 - i. Select **Downloads > Automatic prompting for file downloads > File download > Enable**
 - j. Click **OK**.

3.3.3 Submit an Error Log for Analysis

The interrogator log is saved as an encrypted file and is required to be sent to the Christie Service Department for analysis. **NOTE:** *Please allow for a 24 hour response time.*

1. To submit an error log:
 - a. Attach the log file to your email.
 - b. Add the following:
 - Your name
 - Company name
 - Telephone number
 - Email address
 - A detailed description of the error
 - A Photo of the error (optional)
 - c. Email to: tech-support@christiedigital.com

3.3.4 LCD Error Messages

To receive more information about an error, send the following serial command, where “x” is the first number in the error message: `HTL+LSOL?x`

For instance; if the LCD showed the following:

```
                                Error Alarm                                1/1
System Health
3:11 (Critical) Thermal Det: 4
```

More information can be retrieved by sending the following serial command: `HTL+LSOL?3`

The projector would then respond with:

```
HLT+LSOL!003 "Failed to assign I2C address to
Thermal Sensor. Verify Sensor Configuration
File. Detection Failure for Thermal Sensor.
Check cables and Configuration File."
```

For more information about the **HLT** command, see the *Serial Command (P/N: 020-100224-XX)* documentation, available on the Christie web site.

4 Parts and Module Replacement

4.1 Ordering Parts

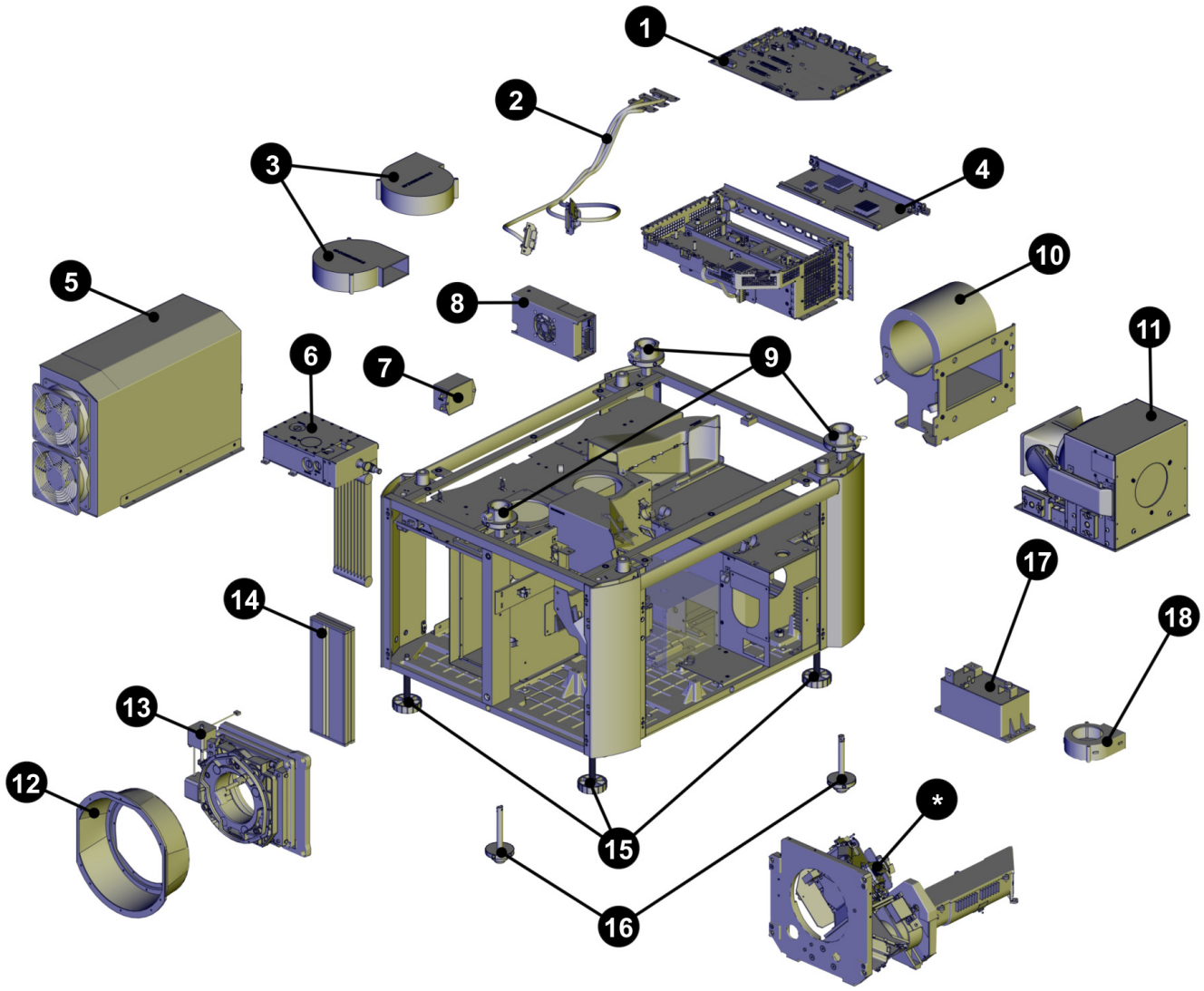
When ordering replacement parts provide the following information found on the product license label:

- Christie part number for each item
- Projector model
- Projector serial number
- Manufacture date

Table 4.1 Technical Support Contact Information

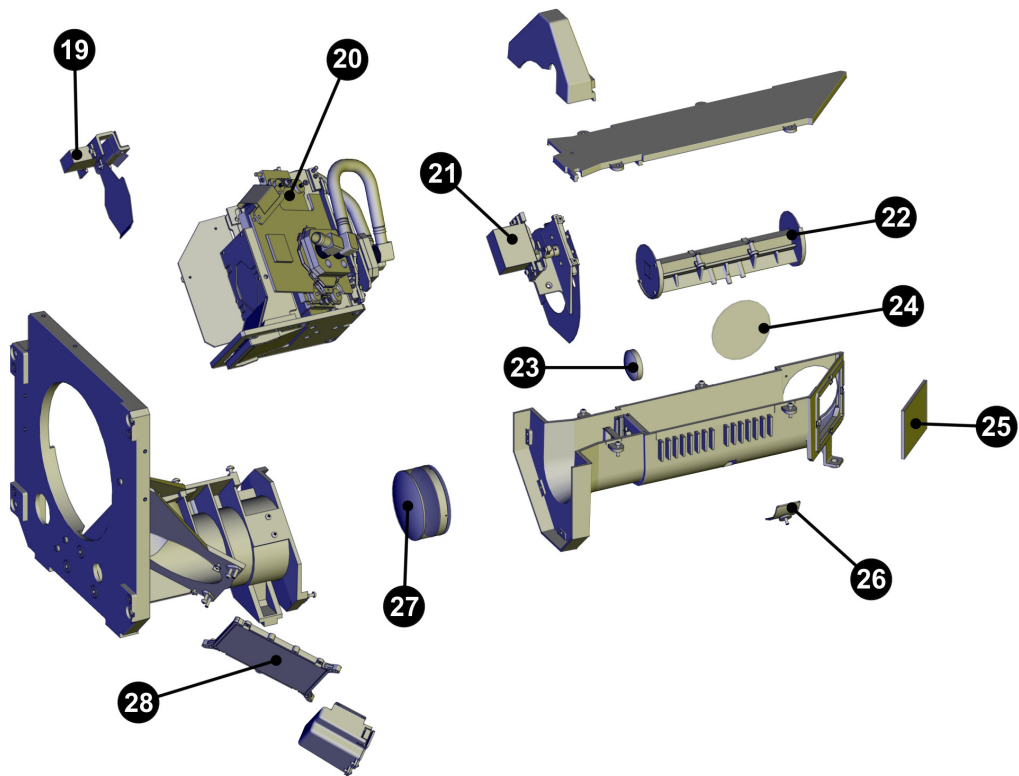
AMERICAS		
Canada Toll Free: 1-800-221-8025 Tel: 519-744-8005 Fax: 519-749-2776	USA Toll Free: 1-800-221-8025 Tel: 519-744-8005 Fax: 519-749-3302	Chile Toll Free: 1-800-221-8025 Tel: 519-744-8005 Fax: 519-749-3302
EUROPE, MIDDLE EAST AND AFRICA		
United Kingdom Support/Service Centre Tel: +44 (0) 118 977 8111 Fax: +44 (0) 118 977 8112	Germany Support Tel: +49 (0) 1749 9834 95 Fax: +49 (0) 2161 6645 46 Service Centre Tel: +49 (0) 2161 56620 22 Fax: +49 (0) 2161 6645 46	France Support Tel: +33 (0) 1 47 48 28 06 Fax: +33 (0) 1 47 48 26 06 Service Centre Tel: +33 (0) 1 47 48 28 88 Fax: +33 (0) 1 47 48 26 06
Italy eHome Italia Service Tel: +39 (0) 2 9902 1161 Fax: +39 (0) 2 9902 2641	Spain Marcus Fernandez Christie Spain c/o Esher Tel: +34 91 633 9990 Fax: +34 91 633 9991 Mobile: +34 667 447 707	Hungary & Russia Support/Service Centre Tel: +44 (0) 118 977 8111 Fax: +44 (0) 118 977 8112
Middle East & Africa Support/Service Centre Tel: +44 (0) 118 977 8111 Fax: +44 (0) 118 977 8112	Eastern Europe Support/Service Centre Tel: +44 (0) 118 977 8111 Fax: +44 (0) 118 977 8112	
ASIA-PACIFIC		
Singapore Tel: +65 877 8737 Fax: +65 877 8747	China - Beijing Tel: +86 21 6278 7708 Fax: +86 21 6278 7707	China - Shanghai Tel: +86 21 6278 7708 Fax: +86 21 6278 7707
Japan - Tokyo Tel: +81 3 3599 7481 Fax: +81 3 3599 7482	South Korea Tel: +82 2 702 1601 Fax: +82 2 702 1602	

4.1.1 Projector Exploded View

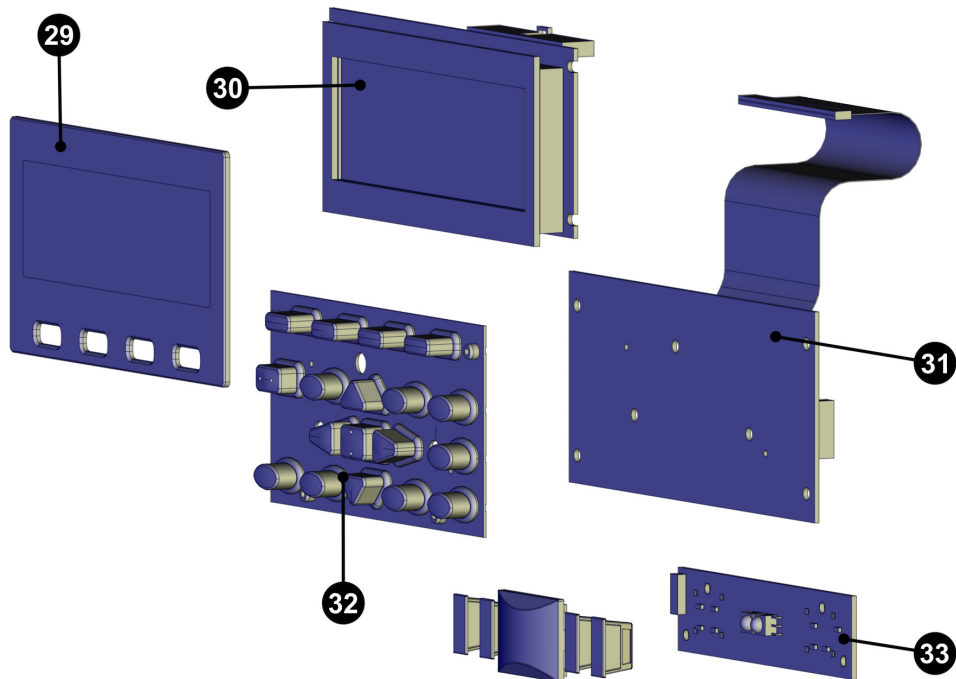


*See Optical Engine Exploded View

4.1.2 Optical Engine Exploded View



4.1.3 Projector Keypad Exploded View



4.2 Available Replacement Parts and Modules

This table lists the replacement J Series projector parts and accessories that are available for order:

EXPLODED VIEW LABEL	PART NAME/DESCRIPTION	CHRISTIE SERVICE KIT PART #
1	Panel Driver	003-111506-XX
2	Harness LVDS Kit	003-003794-XX
3	12V Blower (150 mm)	003-110862-XX
4	Standard Image Processor Card (SIPC)	003-002556-XX
	Dual Image Processor Card (DIPC)	003-100470-XX
5	Lamp Power Supply 1900W (not shown)	03-900561-51P
	Lamp Power Supply 2400W (not shown)	03-900560-51P
	Lamp Power Supply 3000W (shown)	003-120010-XX
6	Liquid Cooling Module	003-120602-XX
7	AC Line Filter	003-002038-XX
8	Low Voltage Power Supply	003-120578-XX
9	Top Stackers	003-000367-XX
10	Blower Fan 230 VAC	003-004004-XX
11	Lamp Module 3.0kW	003-004086-XX
	Bulb Replacement 3.0kW	003-004124-XX
	Lamp Module 2.4kW	03-900518-61P
	Bulb Replacement 2.4kW	03-000883-01P
	Lamp Module 2.0kW	003-120135-XX
	Bulb Replacement 2.0kW	03-000887-01P
12	Lens Mount Dust Boot	003-102168-XX
13	ILS Lens Mount	003-102163-XX
14	Filter Kit (5 pack)	03-900546-51P
15	Feet	03-900528-51P
16	Bottom Stackers	003-000368-XX
17	Ignitor	03-900547-51P
18	12V Blower (95 mm)	003-111609-XX
19	Shutter Assembly	003-102166-XX
20	Light Engine SX+	003-102151-XX
	Light Engine HD	003-102152-XX
	Light Engine WU	003-102153-XX
21	Aperture Assembly	003-102167-XX

EXPLODED VIEW LABEL	PART NAME/DESCRIPTION	CHRISTIE SERVICE KIT PART #
22	Integrator SX+ Integrator HD Integrator WU	003-000861-XX 003-100261-XX 003-101546-XX
23	Glass Lens 29 mm	003-002550-XX
24	Window Glass 60x2 mm	03-900548-51P
25	Cold Mirror	03-900535-51P
26	Integrator Adjustment Knob	03-900534-51P
27	Optical Lens Doublet	003-000776-XX
28	Fold Mirror	03-900531-51P
29	LCD Display Cover	003-002285-XX
30	LCD 5-inch	003-110819-XX
31	Keypad Assembly	003-110818-XX
32	Keypad Membrane	003-003859-XX
33	PCB Rear IR Sensor	003-110806-XX
—	PCB Lamp Contact	003-000644-XX
—	UV Filter	03-900542-51P
—	DTSM Assembly	003-111269-XX
—	Convenience Light	003-111635-XX
—	PCB AC Relay	003-110228-XX
—	Silicone Gasket	003-000862-XX
—	MTG CONN Out Kit	003-000911-XX
—	SW Interlock Switch	003-001559-XX
—	Kit Ring Casting	003-001840-XX
—	LED Voltmeter	003-120055-XX
—	Module IR Sensor	03-900529-51P
—	Light Sensor	03-900530-51P
—	PCB Dual Frequency IR Receiver	003-100221-XX
—	PCB PBP 1.1	003-100465-XX
—	Remote Control IR with Laser	003-120414-XX
—	Harness Wired Keypad Remote	003-002873-XX
—	Harness 3D Stereo SYNC	003-110077
—	North American Line Cord 8.25-foot	03-002045-51P
—	Lens Mount Handle	003-004013-XX
—	SW/Circuit Breaker	003-000312-XX
—	Packaging Kit	003-002563-XX
—	Thermal Tape Replacement	003-000641-XX

EXPLODED VIEW LABEL	PART NAME/DESCRIPTION	CHRISTIE SERVICE KIT PART #
—	Shipping Lens Plug	03-900565-51P
—	Thermal Pad Replacement	03-900569-51P
—	Heat Deflector	003-000851-XX
—	Skin Fastener Kit	03-900579-51P
—	Lens Support Kit	003-100830-XX
—	Convergence Tool kit	003-000078-XX
—	Cover Lens Set 0.73SX+/0.67HD	003-002837-XX
—	Cover Lens Set	003-002838-XX
—	Cover Lens Set 1.25SX+/1.1HD	003-002841-XX
—	Lens Connector Kit	003-003351-XX

4.3 Servicing Guidelines

- Follow all service safety warnings and guidelines. See [Introduction](#).
- Always read and understand all instructions before starting the procedure.
- Always power down and disconnect power sources prior to removal.
- See [Interconnections](#) when re-connecting harnesses.
- When reinstalling a module, follow “removal” instructions in reverse unless otherwise indicated.

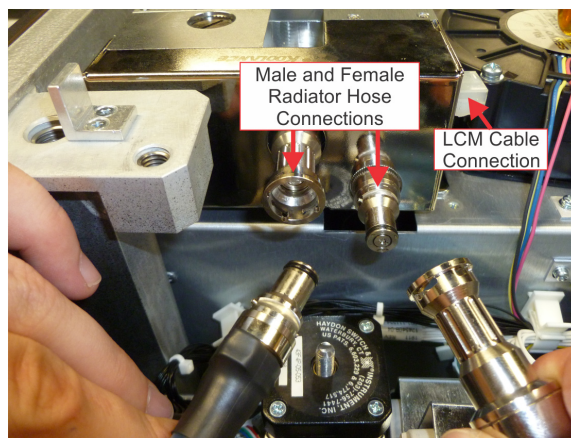
4.4 Tools Required

- Long magnetic-tip Phillips™ screwdrivers - #1, #2
- Slotted screwdriver
- Stubby, right angle, universal joint screwdrivers
- Metric Allen Key Set: 2.5 mm, 3 mm, 5 mm, 6 mm
- Metric Hex Driver Set: 2.5 mm, 3 mm, 5 mm, 6 mm
- Metric Socket Driver Set
- Wrench: 10 mm, 13 mm
- 6 inch adjustable wrench
- Magnetizer
- Electrostatic protective strap and pad
- Disposable Nitril gloves

4.5 Remove and Replacement of Parts

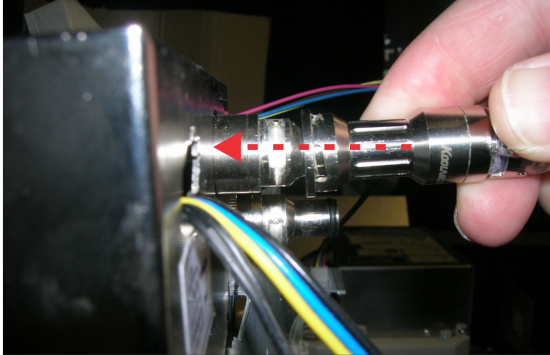
4.5.1 Remove and Replace the Liquid Cooling Module

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
4. Remove the removable cross member on the frame:
 - a. Remove the 2 hex head screws.
 - b. Lift and remove the bracket and set it aside.
5. Remove and set aside the 4 screws securing the liquid cooling module (LCM) to the cooling duct.
6. Disconnect the LCM cable connection.
7. Disconnect the radiator hose connections:
 - a. Press the connector in.
 - b. Turn counter clockwise.

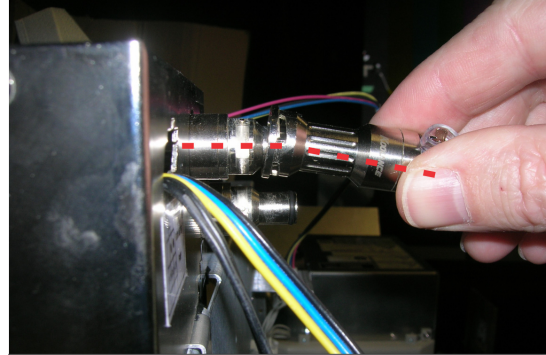


8. Lift the LCM straight up and set it aside.

9. Install the new LCM.
 - a. Lubricate the radiator hose connector o-ring with a small amount of coolant.
 - b. Install the hose connector straight onto the mating connector. Do not tilt the connector or it will damage the o-ring.



CORRECT



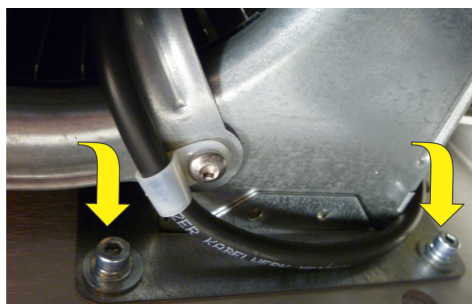
INCORRECT

- c. Turn clockwise.
- d. Power up the projector and inspect for leaks.

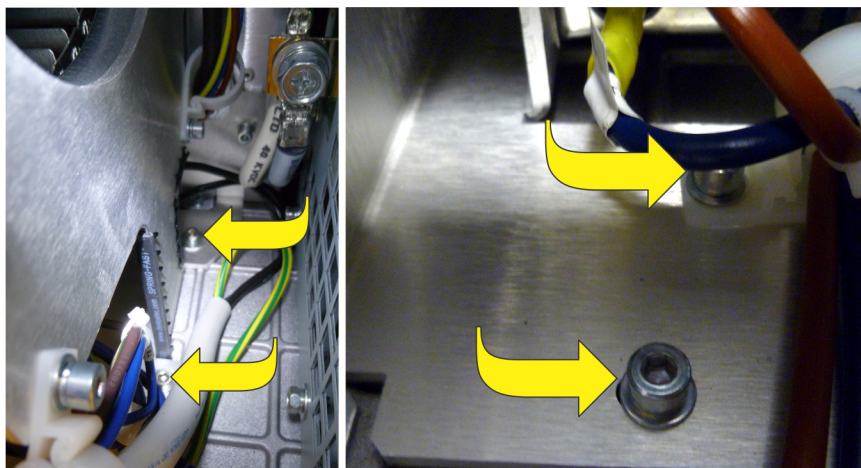
4.5.2 Remove and Replace AC Lamp Blower Fan

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
4. Remove the non-lens side cover:
 - a. Loosen the 6 quick-release screws for the side cover.
 - b. Remove the cover and set it aside.
5. Remove the lamp ballast.
6. Remove the 8 AC terminal bracket screws.
7. Disconnect ballast harness from line filter & ground for 2.4 & 3.0kW and move it aside to access the lamp blower screws.

8. Remove the 2 screws at bracket-to-baseplate points.



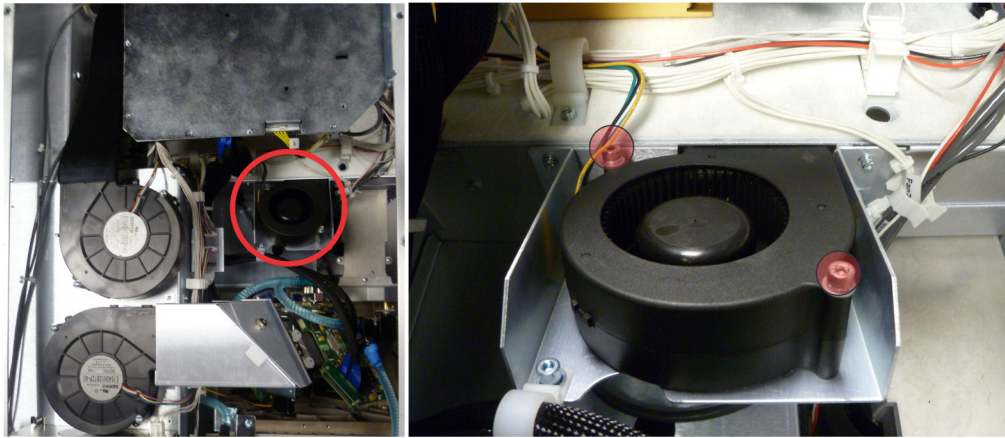
9. Remove the 4 screws at bracket-to-lamp housing points.



10. Disconnect the harness for 2.0, 2.4, and 3.0kW:
 - a. AC relay and capacity cable from terminal block (TB) and Ground (G).
 - b. AC blower cable from AC relay and capacity cable.
11. Disconnect the harness for 2.0kW and 2.4kW:
 - a. AC Input cable from TB and G.
12. Disconnect the harness for 2.4kW and 3.0kW:
 - a. TB cable from line filter (rear side connection).
13. Remove the AC blower and bracket assembly.
14. Replace AC blower.

4.5.3 Remove and Replace Anode Fan (2.0 & 2.4kW Only)

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Disconnect fan harness and release it from its wire dressing clips.
4. Remove the 2 screws securing the fan.

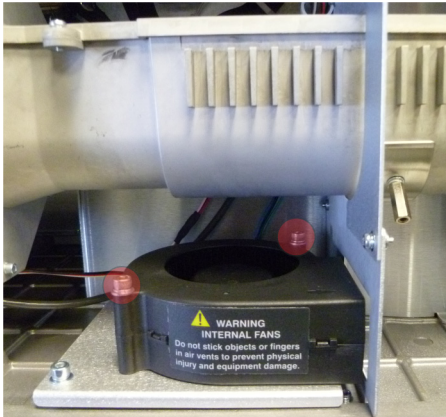


5. Remove the fan assembly.
6. Install the anode fan.

4.5.4 Remove and Replace the Integrator Blower Fan

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.

4. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws for the side cover.
 - b. Remove the cover and set it aside.
5. Remove the lens side small cover that sits behind the handle:
 - a. Loosen the 3 quick-release screws for the cover.
 - b. Remove the cover and set it aside.
6. Disconnect the fan harness and release it from its wire dressing clips.
7. Remove the 2 screws securing the fan.

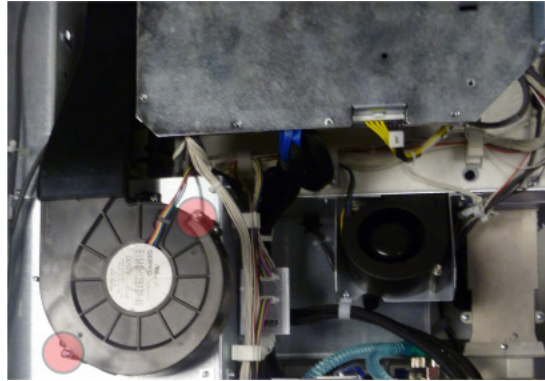


8. Remove the fan assembly.
9. Install the integrator blower fan.

4.5.5 Remove and Replace the Card Cage Cooling Fan

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
4. Remove the 2 screws holding the removable cross member on the frame and set it aside.
5. Remove the 3 screws securing the air duct.
6. Disconnect the fan harness and release it from its wire dressing clips.

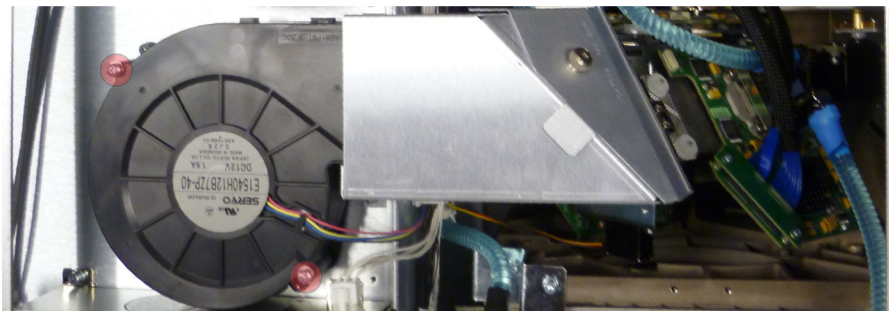
7. Remove the 2 screws and washers securing the fan.



8. Remove the fan assembly.
9. Install the card cage cooling fan.

4.5.6 Remove and Replace the Prism Fan

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
4. Remove the 2 screws holding the removable cross member on the frame and set it aside.
5. Disconnect the fan harness and release it from its wire dressing clips.
6. Remove the 2 screws and washers securing the fan.



7. Remove the fan assembly.
8. Install the prism fan.

4.5.7 Remove and Replace the Red Channel Cooling Fan

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
3. Remove the side covers:
 - a. Loosen the 6 quick-release screws for each side cover.
 - b. Remove each cover and set it aside.
4. Remove the 4 screws securing the light engine blower duct.
5. Disconnect fan harness.
6. Remove the light engine. See [Remove and Replace the Light Engine](#).
7. Remove the 3 fan bracket screws.
8. Using the handle on the bracket, carefully remove the fan and the bracket.
9. Remove the 2 screws from the fan and bracket.
10. Install the fan and bracket.

4.5.8 Remove and Replace the Lamp Ballast

⚠ DANGER Always power down the projector and disconnect all power sources before servicing.

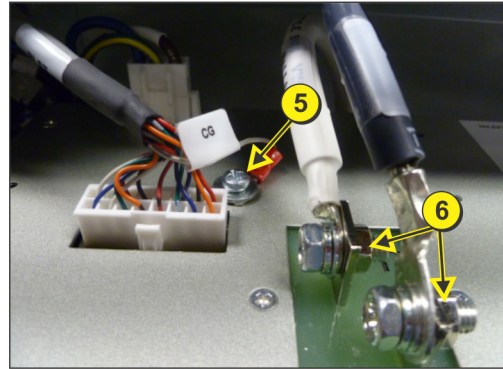
1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the non-lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
3. Remove the non-lens side small cover that sits behind the handle:
 - a. Loosen the 3 quick-release screws for the cover.
 - b. Remove the cover and set it aside.
4. Remove the 3 hex screws securing the lamp ballast to the base plate and slide it out to gain access to the harnesses. NOTE: *3.0kW, slightly lift up and then slide out.*



5. Remove the shield ground screw. **NOTE:** Located at the end of the ballast for the 2.4kW and 3.0kW and at the top of the ballast for the 1.9kW projector.
6. Remove and retain the screws, flat washers, and lock washers from the (white) Cathode and (black) Anode terminals. **NOTE:** Polarity markings on ballast (+ = white, - = black).

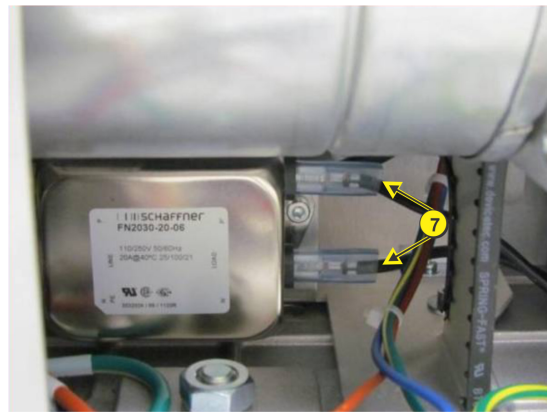


3.0kW and 2.4kW Ballast



1.9kW Ballast

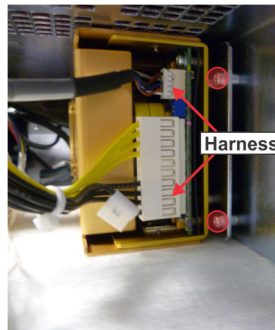
7. Disconnect the black wire terminal #1 and #2 tabs from the AC line filter.



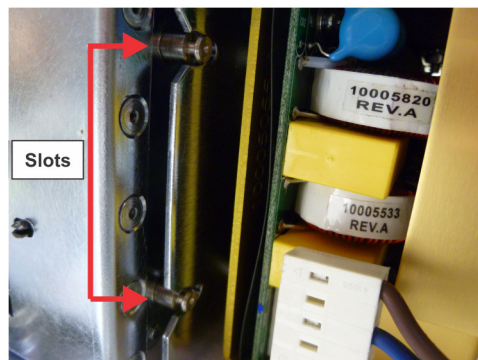
8. Remove the lamp ballast from the projector.
9. Remove and retain the 2 mounting side brackets from the ballast and set them aside.
10. Secure the 2 mounting side brackets to the new ballast.
11. Install the new ballast following the removal steps, in reverse order.

4.5.9 Remove and Replace the Low Voltage Power Supply (LVPS)

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
4. Remove the 3 screws securing the air duct.
5. Disconnect the AC harness connector from LVPS.
6. Disconnect the P2 & J3 harness connectors from LVPS.
7. Remove the 2 screws from the brackets securing the LVPS.
8. Slide the LVPS out through the side of the projector. **NOTE:** *Ensure wires are free of any obstruction.*



9. Install the new LVPS. **NOTE:** *Ensure to align LVPS into the slots.*



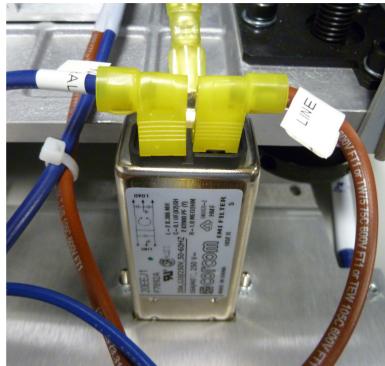
4.5.10 Remove and Replace the AC Line Filter

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. For the 3.0kW:
 - a. Remove the locking pin from the bracket surrounding the AC receptacle at the AC inlet.
 - b. Remove the 2 screws from the AC inlet bracket.
3. For 2.0kW and 2.4kW:
 - a. Remove the power cord retaining clip.
4. For 3.0kW, disconnect the two inlet connectors and the 2 outlet connectors from the AC line filter
5. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB.
 - c. Disconnect the projector keypad harness connector P65.
 - d. Remove the rear cover and set it aside.
6. Remove the 8 screws from the AC cover panel.
7. Pull the left side of the AC cover panel towards you while you slide the right side and pull it forward to access the AC power switch.



8. For 2.0kW and 2.4kW:

- a. Disconnect the 3 AC line filter connectors.



9. Remove the AC line filter.
10. Install the new AC line filter.

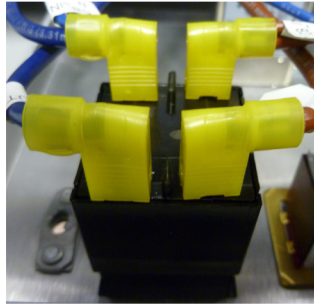
4.5.11 Remove and Replace the AC Power Switch (2.0kW & 2.4kW)

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB.
 - c. Disconnect the projector keypad harness connector P65.
 - d. Remove the rear cover and set it aside.
3. Remove the power cord retaining clip and the 8 screws from the AC cover panel.



4. Pull the left side of the AC cover panel towards you while you slide the right side and pull it forward to access the AC power switch.

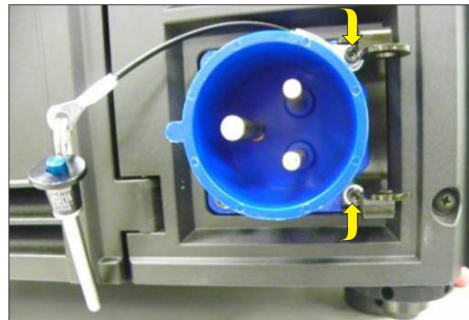
5. Disconnect the 4 AC switch connectors.



6. Unlock and remove the AC power switch.
7. Install the new AC power switch.

4.5.12 Remove and Replace the AC Power Switch (3.0kW)

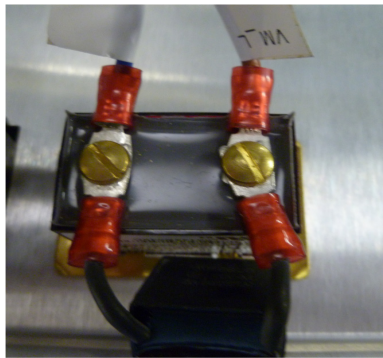
1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the locking pin from the bracket surrounding the AC receptacle at the AC inlet.
3. Remove the 2 screws from the AC inlet bracket.



4. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB.
 - c. Disconnect the projector keypad harness connector P65.
 - d. Remove the rear cover and set it aside.
5. Remove the 8 screws from the AC cover panel.
6. Remove the 4 screws from the AC receptacle and then pull the left side of the AC cover panel towards you while you slide the right side and pull it forward to access the AC power switch.
7. Disconnect the 4 AC switch connectors.
8. Unlock and remove the AC power switch.
9. Install the new AC power switch.

4.5.13 Remove and Replace the AC Voltmeter

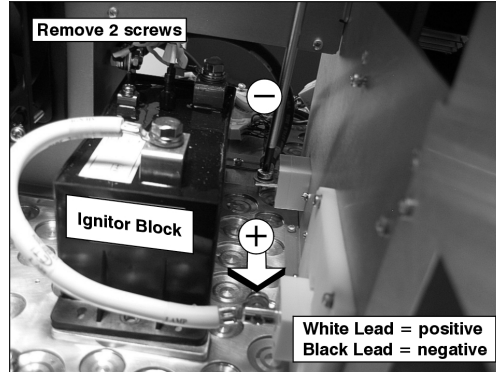
1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. For the 3.0kW:
 - a. Remove the locking pin from the bracket surrounding the AC receptacle at the AC inlet.
 - b. Remove the 2 screws from the AC inlet bracket.
 - c. Remove the 4 screws from the AC inlet.
3. For 2.0kW and 2.4kW:
 - a. Remove the power cord retaining clip.
4. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB.
 - c. Disconnect the projector keypad harness connector P65.
 - d. Remove the rear cover and set it aside.
5. Remove the 8 screws from the AC cover panel and pull it out.
6. Remove the 2 screws securing the filter capacitor and AC connection.
7. Remove the AC voltmeter.
8. Install the new AC voltmeter and tighten the 2 screws. **NOTE:** *Tighten the two screws to 4 inch-lb.*



4.5.14 Remove and Replace the Igniter

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the lamp ballast. See [Remove and Replace the Lamp Ballast](#) or [Remove and Replace the Temp 2 Exhaust PC Board](#). *Do not remove the mounting brackets.*
3. Remove the screw and lock washer from the anode connection.
4. Remove the screw and lock washer from the cathode connection.

5. Remove the screw and lock washer securing the igniter.
6. Remove the igniter assembly.
7. Remove the three remaining terminal connections
8. Install the igniter.



4.5.15 Remove and Replace the Lamp



Replacement Lamp Part Numbers

!WARNING Always power down and unplug the projector prior to servicing. Allow the lamps to cool before handling.

Before you replace the lamp, verify you have the correct lamp for the projector.

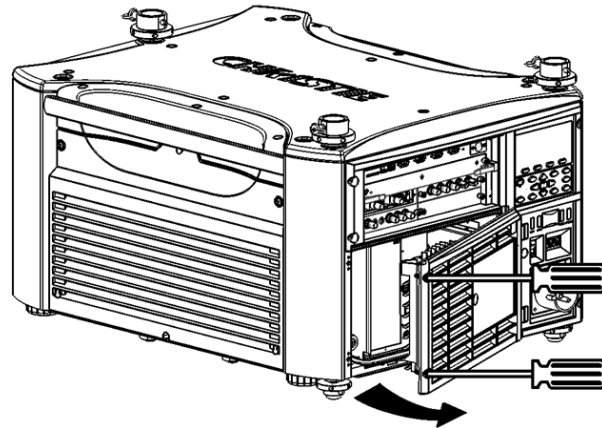
Table 4.2

Projector Part Number	Projector Model	Lamp Type	Lamp/Filter Kit Required
Roadster S+14K-J	132-010113-xx	2.0 kW	003-120135-xx
Mirage S+14K-J	132-010124-xx		
Roadster HD14K-J	132-011114-xx		
Mirage HD14K-J	132-011125-xx		
Mirage WU14K-J	132-012126-xx		
Matrix WU14K-J	132-012137-xx		
Roadster S+18K-J	132-013116-xx	2.4 kW	03-900518-xx
Mirage S+18K-J	132-013127-xx		
Roadster HD16K-J	132-014117-xx		
Mirage HD16K-J	132-014128-xx		

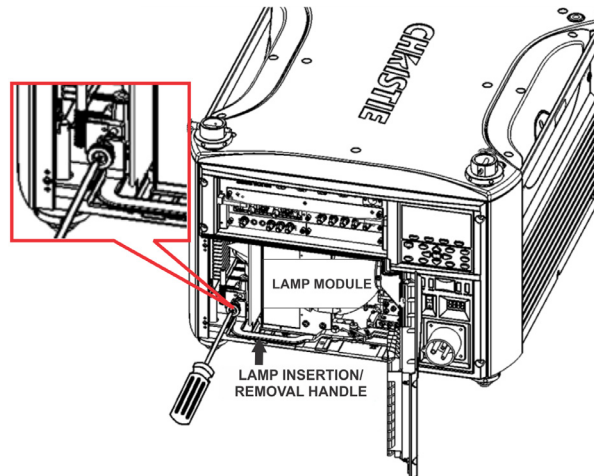
Table 4.2

Roadster S+22K-J	132-016119-xx	3.0 kW	003-000306-xx
Mirage S+22K-J	132-016120-xx		
Roadster HD20K-J	132-017110-xx		
Mirage HD20K-J	132-017121-xx		
Roadster WU20K-J	132-018111-xx		
Mirage WU20K-J	132-018122-xx		
Matrix WU20K-J	132-018133-xx		

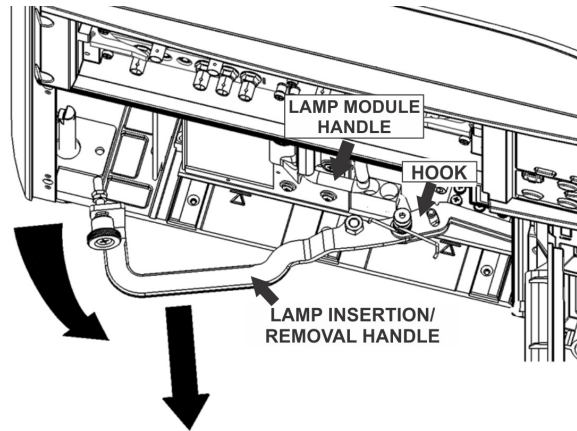
1. Turn the lamp and projector off. Allow the projector to cool for a minimum of 5 minutes.
2. Unplug the projector.
3. Put on your protective clothing and face shield.
4. Loosen the captive screws securing the lamp door.



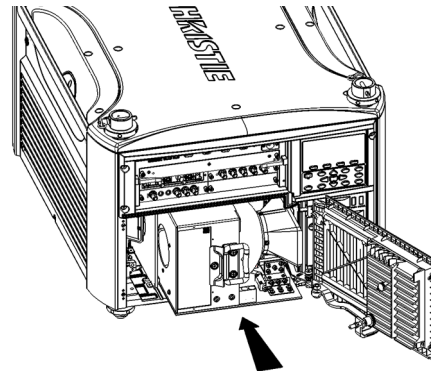
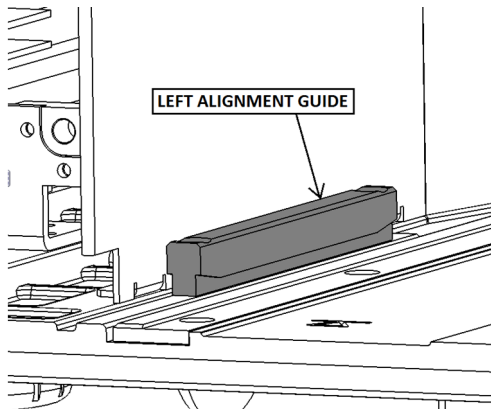
5. Loosen the screw holding the lamp module handle.



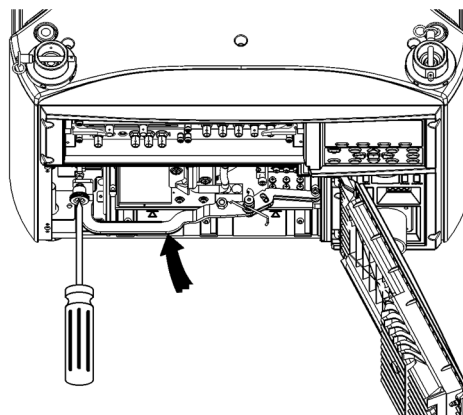
6. Pull the lamp module handle outward to remove the lamp. Place the lamp in a protective case and follow the disposal procedure for your location.



7. Install the lamp module:
 - a. Align the base plate of the new lamp module with the alignment guides in the projector.
 - b. Slide the lamp module into the projector until resistance increases.
 - c. Verify the lamp is aligned with the lamp alignment marks.



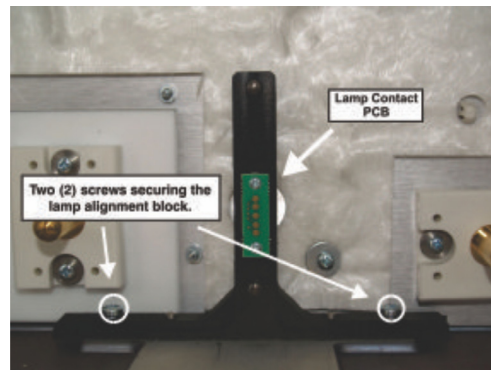
8. Move the lamp module handle inward and tighten the holding screw.



9. Close the lamp door and tighten the captive screws.
10. Record the lamp serial number:
 - a. Click **Menu > Advanced Setup > Lamp History**.
 - b. Click **Add Lamp**.
 - c. Complete the fields in the **Add Lamp** dialog.
 - d. Click **Save**.

4.5.16 Remove and Replace the Lamp Memory Module

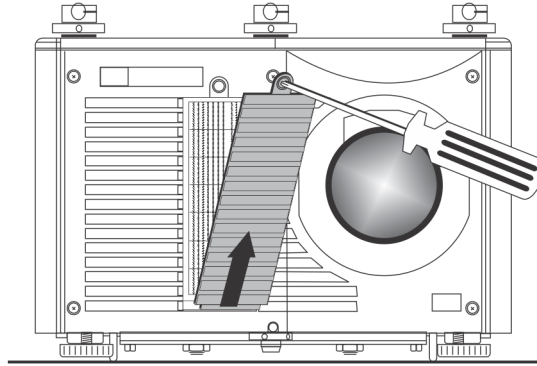
1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the lamp. See [Remove and Replace the Lamp](#).
3. Locate the lamp contact PCB which attaches to the lamp alignment block.
4. Remove the 2 screws that secure the lamp alignment block to the bottom of the lamp compartment.



5. Disconnect the harness from the PCB and then remove the lamp alignment block.
6. Lay the block on a flat surface with the lamp contact PCB facing up.
7. Remove the 2 screws that secure the PCB to the block.
8. Install the new PCB.
9. Install the PCB in the correct orientation so the lamp memory PCB on the lamp can connect to it when the lamp is inserted.
10. Carefully reconnect the harness to the PCB.
11. Replace the block.
12. Install the new lamp module.

4.5.17 Remove and Replace the Air Filter

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the quick release screw on the filter cover.



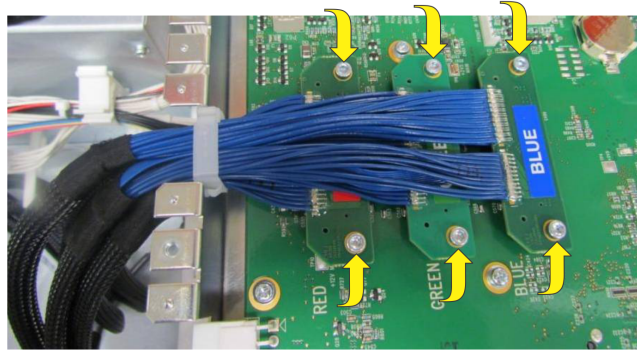
3. Remove the air filter.
4. Install the air filter with the directional arrow on the cartridge facing into the projector.
5. Tighten the quick release screw on the filter cover.

4.5.18 Remove and Replace the Light Engine

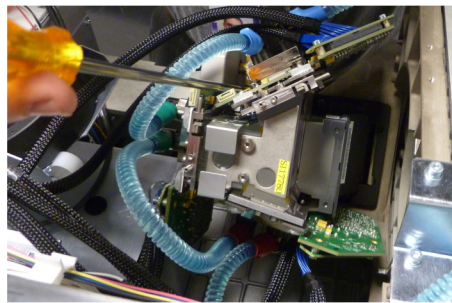
ATTENTION: Observe precautions for handling electrostatic sensitive devices. Wear a properly grounded wrist strap.

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
3. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
4. Remove the 2 screws holding the removable cross member on the frame and set it aside.
5. Remove the 2 screws securing the shutter assembly to the light engine.
6. Remove the 4 screws securing the light engine blower duct.
7. Remove the 9 screws from the panel driver cover.

8. Remove the 6 screws securing the red (P84), green (P85), and blue (P86) satellite cable connections to the panel driver.



9. Remove the 3 screws securing the light engine base plate to the optical assembly.

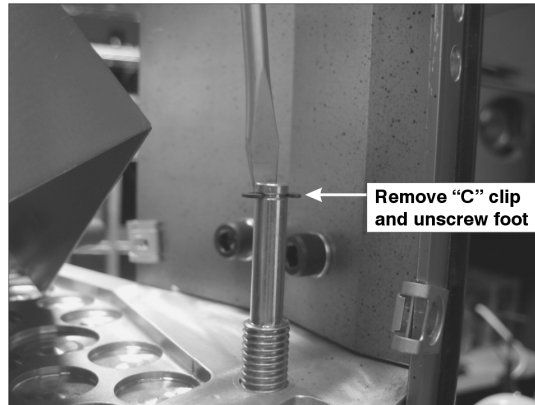


10. Disconnect the liquid cooling hoses.
11. Lift the light engine out of the projector, and place it onto a optical assembly base. **NOTE:** *Do not touch the glass surface.*
12. Install the light engine. **NOTE:** *The light engine may require adjustment to boresight alignment ([Boresight Alignment](#)), fold mirror adjustment ([Fold Mirror Adjustment](#)), and integrator adjustment ([Integrator Assembly Adjustment](#)).*

4.5.19 Remove and Replace the Feet

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Access the front feet, remove the front cover:
 - a. If installed, remove the projection lens. See [Remove the Lens](#).
 - b. Remove the 6 screws holding the lens mount dust boot.
 - c. Remove the 6 quick-release screws holding the front cover and then remove it and set it aside. **NOTE:** *The dust boot stays attached to the front skin.*
3. Access the rear feet, remove the lens side cover or non-lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
 - c. Place the projector on its side to access the feet.

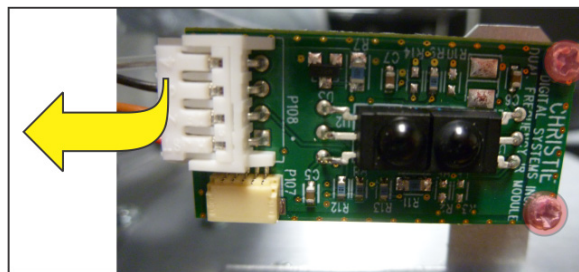
4. Remove the retention clip from the top of the foot.
5. Unscrew the foot and remove it from the projector.
6. Insert the threaded end of the replacement foot in the mounting hole and turn until tight.



7. Replace retention clip.

4.5.20 Remove and Replace the Front IR Sensor

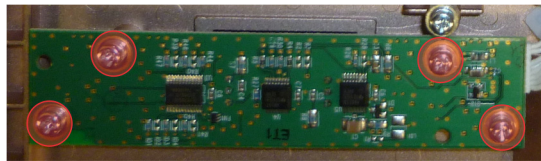
1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the front cover:
 - a. Remove the 6 quick-release screws holding the front skin and then remove it and set it aside.
3. Disconnect the sensor connector.
4. Remove the 2 screws.



5. Remove the sensor
6. Install the front infrared sensor.

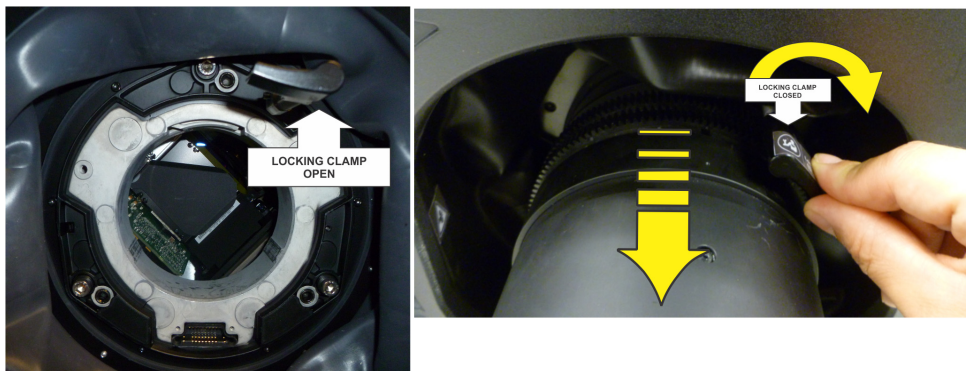
4.5.21 Remove and Replace the Rear IR Sensor

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB.
 - c. Disconnect the projector keypad harness connector P65.
 - d. Remove the rear cover and set it aside.
3. Remove the 4 screws securing the rear IR sensor/LED status display PC board.
4. Disconnect the rear harness connection P80/J80.
5. Remove the infrared sensor.
6. Disconnect PCB from harness.
7. Connect new PCB to harness.
8. Install the infrared sensor.



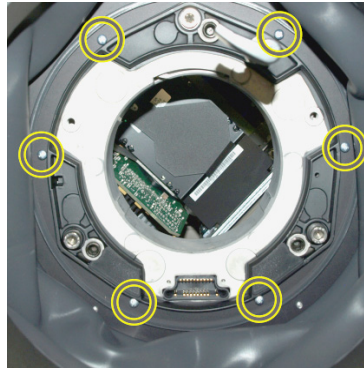
4.5.22 Remove and Replace the Lens Mount

1. Remove the lens mount:
 - a. If the projector is running, turn it off and allow it to cool for a minimum of 5 minutes.
 - b. Disconnect the projector from AC power and turn the circuit breaker off.
 - c. Rotate the lens locking lever counter clockwise to unlock the lens.
 - d. Pull the lens straight out of the lens mount.

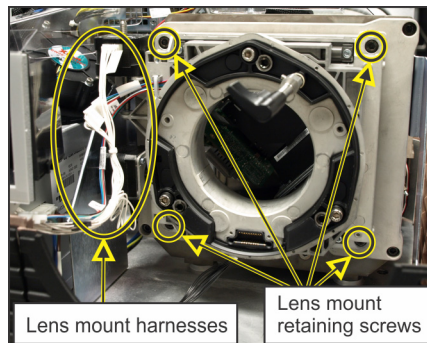


2. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.

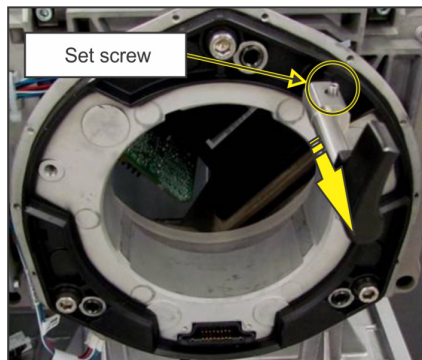
3. Remove the six lens mount dust boot screws.



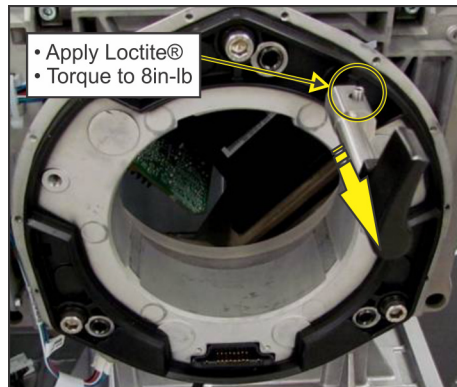
4. Remove the front cover:
 - a. Remove the 6 quick-release screws holding the front skin and then remove it and set it aside.
5. Disconnect the 5 lens mount harnesses from the lens mount.
6. Remove the 4 screws from the lens mount.
7. Remove the lens mount.



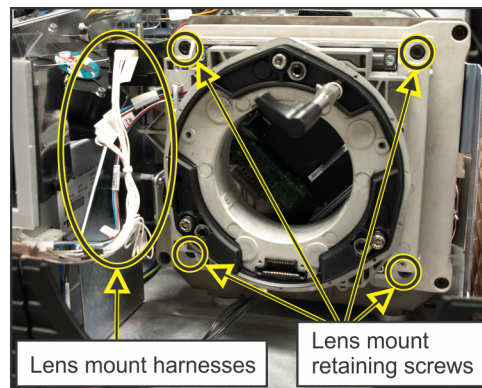
8. Remove the lens mount handle:
 - a. Remove and discard the set screw securing the handle to the handle mount dowel.
 - b. Remove the handle from the lens mount.



9. Install the lens mount handle:
 - a. Apply Loctite® to the new set screw.
 - b. Insert the set screw into the handle shaft and turn it clockwise two full turns.
 - c. Position the handle mount dowel with the flat surface facing up.
 - d. Slide the handle shaft onto the dowel with the set screw facing up.
 - e. Torque the set screw to 8in-lb.



10. Install the lens mount
 - a. Align the lens mount with the dowel on the lens mount backing plate. Insert and tighten the 4 backing plate screws.
 - b. Connect the 5 lens mount harnesses to the lens mount.



- c. Replace the front cover and tighten the 6 captive screws.
 - d. Replace the dust shield and tighten the 6 screws.
 - e. Replace the top cover and tighten the 8 captive screws.
11. Apply a boresight alignment with the new lens mount. See [Boresight Alignment](#).

4.5.23 Remove and Replace the Thermal Sensor / Keypad Harness Assembly

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB.
 - c. Disconnect the projector keypad harness connector P65.
3. Remove the 2 screws from the thermal sensor.
4. Remove the 4 screws from the thermal sensor harness standoffs.
5. Disconnect the P78 harness connector from the projector keypad.
6. Remove the 4 screws from the PCB rear IR sensor.
7. Disconnect the harness from the PCB rear IR sensor.
8. Remove the convenience light board and 3 screws.
9. Remove the harness from the convenience light board.
10. Remove the thermal sensor/keypad harness assembly.
11. Replace the thermal sensor/keypad harness assembly.

4.5.24 Remove and Replace the Temp 2 Exhaust PC Board

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Unscrew the 2 quick release screws on the lamp door.
3. Disconnect the J82 connector on the PC board.
4. Remove the screw securing the PC board.



5. Remove the PC board.
6. Install the new PC board.
7. Connect J82 connector.

4.5.25 Remove and Replace the Integrator Rod Assembly

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
3. Remove the screw securing the contrast aperture cover.
4. Remove the three screws securing the panel.

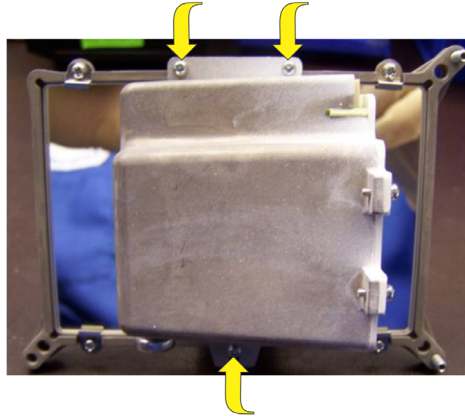


5. Remove the 4 screws securing the integrator cover.
6. Unscrew the integrator adjustment knob.
7. Remove the integrator rod assembly. **NOTE:** *Do not touch the glass surface.*
8. Replace the integrator rod assembly:
 - a. Clean the integrator rod with compressed air.
 - b. Lower the integrator into the optics tray with the polished end toward the lamp compartment.
 - c. Place the spring clip and standoff over the threaded shaft.
 - d. Install the integrator rod adjustment knob.
 - e. Clean the integrator rod with compressed air.
 - f. Replace the optics cover, the contrast aperture and light tube panel.
9. Adjustment of the [Fold Mirror Adjustment](#) and [Integrator Assembly Adjustment](#) may be required.

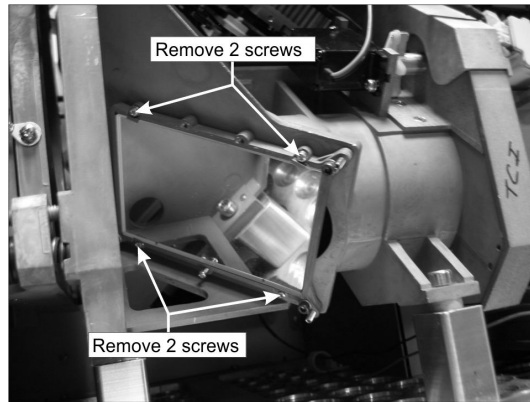
4.5.26 Remove and Replace the Fold Mirror

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.

3. Disconnect the LiteLOC sensor harness.
4. Remove the 2 screws securing the LiteLOC sensor and then loosen the bottom screw.



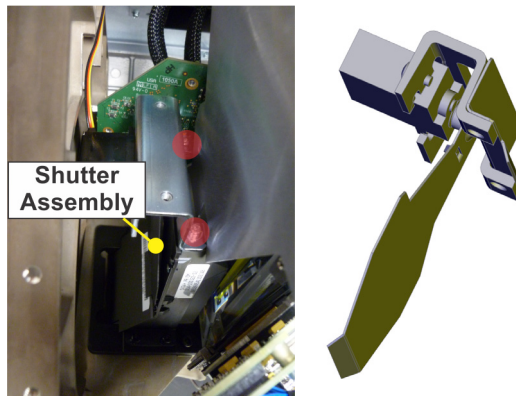
5. Remove the 4 screws.



6. Remove the fold mirror by handling only the edges.
7. Install the new fold mirror:
 - a. Touch the edge of the mirror face to ensure there is no gap between your finger and its reflection.
 - a. Mount the fold mirror with the reflective surface facing into the projector.
 - b. Install the 4 screws.
8. Install the LiteLOC sensor and reconnect the harness.
9. Adjust fold mirror. See [Fold Mirror Adjustment](#).

4.5.27 Remove and Replace the Shutter Assembly

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
3. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws for the side cover.
 - b. Remove the cover and set it aside.
4. Remove the removable cross member on the frame:
 - a. Remove the 2 hex head screws.
 - b. Lift and remove the bracket and set it aside.
5. Remove the 9 screws from the panel driver cover.
6. Disconnect the P17 cable connector from the panel driver and then release it from the 4 cable clamps.
7. Remove the 4 screws from the light engine duct.
8. Remove the shutter harness, harness from cable clips.
9. Remove the 2 screws securing the shutter assembly to the light engine.



10. Remove the shutter assembly.
11. Reinstall the shutter harness in the cable clips.

4.5.28 Remove and Replace the Cold Mirror Assembly

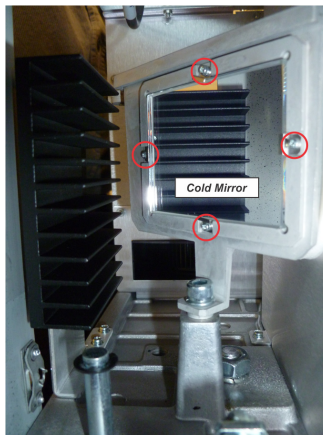
IMPORTANT! Wear nitrile gloves when handling the cold mirror and handle by its edges only - reflective surface facing into the projector.

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.

2. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
3. Remove the 3 screws securing the heat sink.



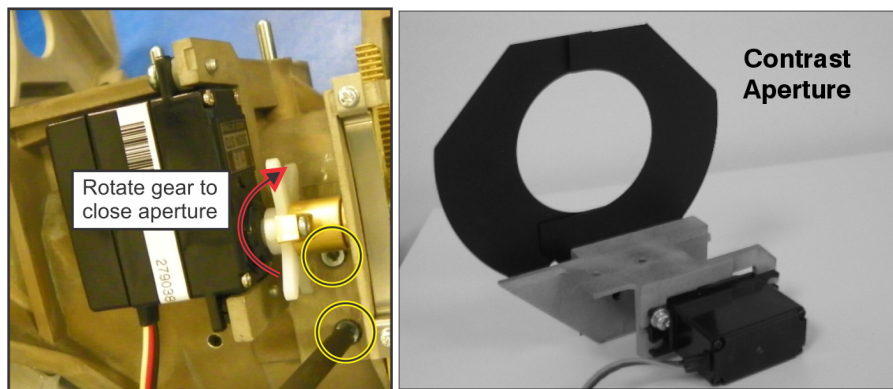
4. Open the lamp door and the lamp module handle.
5. Remove the 4 screws on the cold mirror assembly.
6. Slide the cold mirror from the optical assembly.



7. Install the cold mirror with the reflective side facing inward. *To determine which side is the reflective side, place your finger on the edge of the mirror face and see if there is a gap between your finger and its reflection. NO GAP indicates the closest reflective side – place this side in toward the optical assembly.*

4.5.29 Remove and Replace the Contrast Aperture Assembly

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
4. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
5. Remove the 9 screws from the panel driver cover.
6. Disconnect the P17 from the panel driver and then release it from the 4 clamps.
7. Remove the screw securing the contrast aperture cover.
8. Remove the 2 screws securing the motor to the optical assembly.
9. Manually rotate the motor gear to close the contrast aperture enough to be removed.

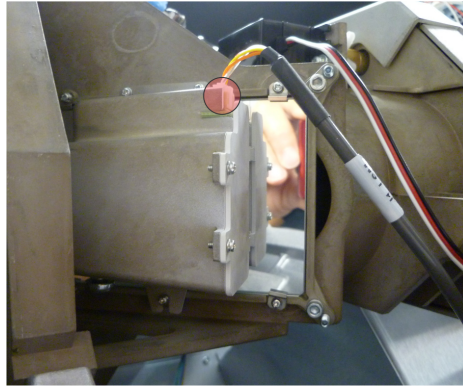


10. Remove the contrast aperture.
11. Install the contrast aperture assembly.

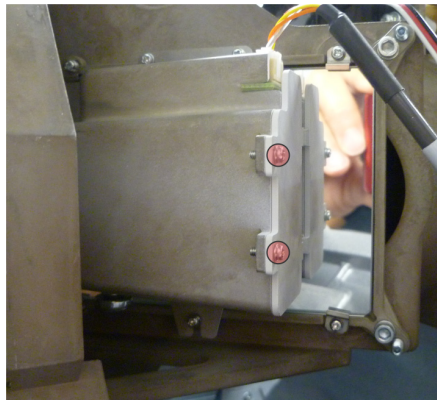
4.5.30 Remove and Replace the LiteLOC Assembly

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.

3. Disconnect the LiteLOC harness.



4. Replace LiteLOC assembly:
 - a. Remove the 2 top screws securing the LiteLOC assembly to the optical assembly and then loosen the bottom center screw.
 - b. Remove the LiteLOC assembly.
5. Install the LiteLOC assembly.
6. Replace the LiteLOC PCB:
 - Remove the 2 screws securing the PCB in place.



7. Remove the PCB.
8. Install the PCB.

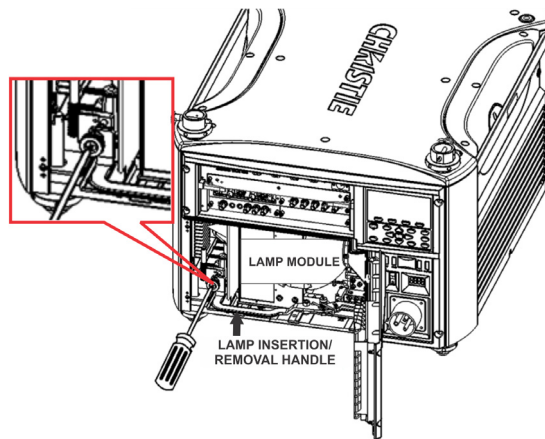
4.5.31 Remove and Replace the Optical Glass Window

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
3. Remove the screw holding the contrast aperture cover.

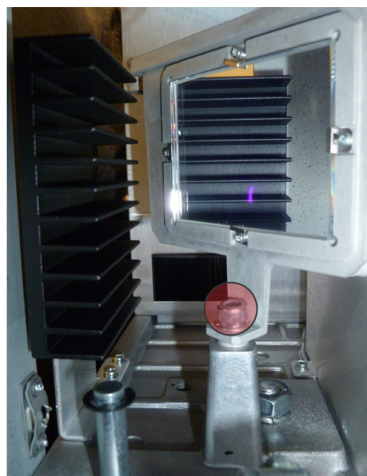
4. Remove the 3 screws securing the heat sink.



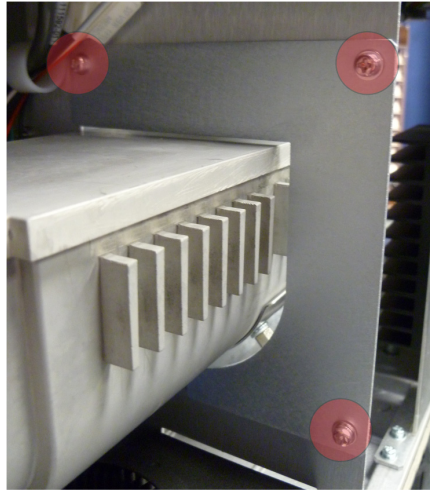
5. Remove the 4 screws securing the integrator housing to optical housing.
6. Loosen the 2 quick release screws on the lamp door.
7. Loosen the screw holding the lamp module handle.



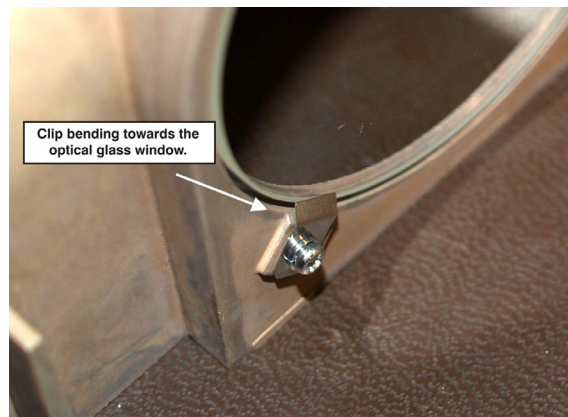
8. Pull the lamp module handle outward.
9. Remove the screw securing the integrator housing to the projector base.



10. Remove the 3 screws securing the panel and then slide the light tube away from the lens.



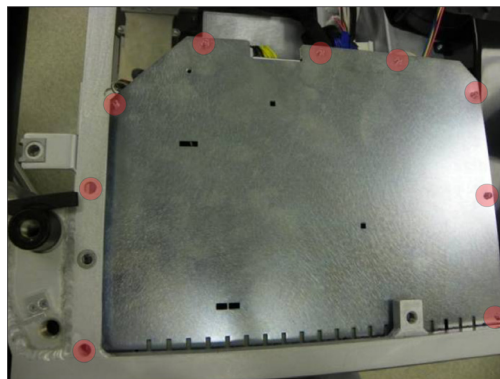
11. Put on a pair of nitrile gloves and then remove the 3 screws and metal clips securing the optical window.
12. Clean the new optical window with compressed air and then place it in the recessed area on the light tube.
13. Attach the 3 clips to the light tube, aligning the holes in the clips with the holes in the light tube. Ensure that the bent end of the clip is toward the optical window.



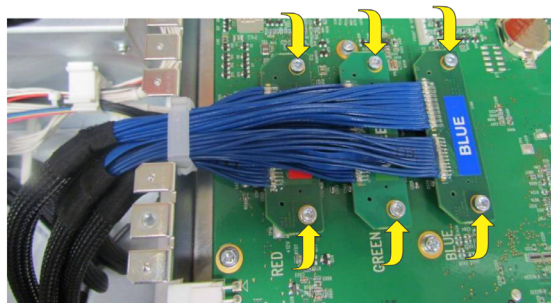
14. Tighten the 3 screws evenly a few threads at a time. After replacing the light tube, if there are shadows on the edges of a full white image, the integrator or fold mirror may need to be adjusted. See [Fold Mirror Adjustment](#) and [Integrator Assembly Adjustment](#).

4.5.32 Remove and Replace the Panel Driver

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. If installed, remove the 3 stacking mounts from the top cover:
 - a. Remove and set aside the safety pin.
 - b. Remove the screw.
 - c. Remove the mount, the screw, and the spring and set them aside.
 - d. Repeat steps a to c for the remaining mounts.
3. Remove the 8 screws holding the top cover and then set it aside.
4. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
5. Remove the lens side small cover that sits behind the handle:
 - a. Loosen the 3 quick-release screws for the cover.
 - b. Remove the cover and set it aside.
6. Remove the removable cross member on the frame:
 - a. Remove the 2 hex head screws.
 - b. Lift and remove the bracket and set it aside.
7. Remove the 9 screws from the panel driver cover.



8. Remove the 6 screws securing the red (P84), green (P85), and blue (P86) satellite cable connections.



9. Disconnect all cable connections.
10. Remove the 8 standoffs securing the GPIO, RS-232IN, RS-232OUT, and RS-422 communication connectors to the front faceplate.
11. Remove the 13 screws securing the panel driver board.
12. Remove the SIPC or DIPC. See [Remove and Replace the Input Module](#).
13. Lift up the main connection between the Passive Backplane and the panel driver to loosen the panel driver.
14. Remove the panel driver.
15. Install the new panel driver.

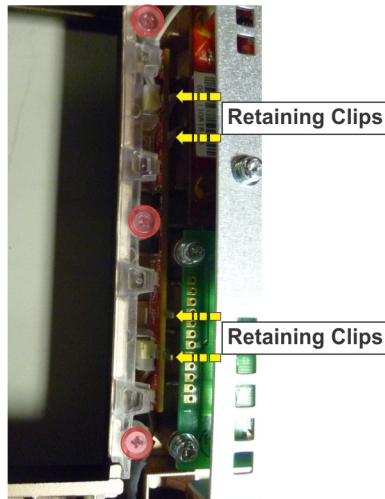
4.5.33 Remove and Replace the Projector Keypad

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB board.
 - c. Disconnect the projector keypad harness connector P65.
3. Remove the 4 screws securing the keypad cover.
4. Remove the 4 standoffs from the projector keypad PC board.
5. Remove the 3 screws from the projector keypad PC board.
6. Disconnect the LCD status display connector.
7. Disconnect the P78 and J78 connectors from the keypad.
8. Remove the projector keypad and the keypad membrane.
9. Install the new projector keypad.

4.5.34 Remove and Replace the Convenience Light Board

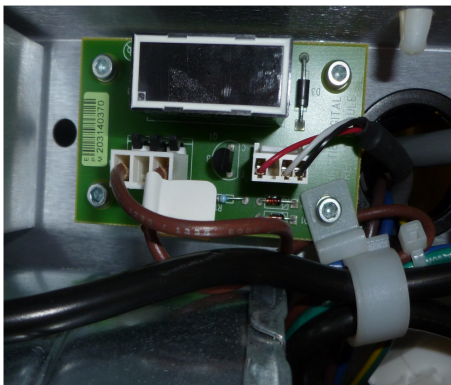
1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB board.
 - c. Disconnect the projector keypad harness connector P65.
3. Disconnect the projector keypad connector.
4. Remove the 3 screws securing the CLB bracket.
5. Disconnect the P1 and P2 connectors for the internal convenience light board.
6. Disconnect the P1 connector for the external convenience light board.

7. Open the 4 retaining clips to release the CLB PC board.
8. Remove the CLB PC board.
9. Install the new CLB PC board.



4.5.35 Remove and Replace the AC Relay Module

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the non-lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
3. Remove the nut and washer from the starter capacitor.
4. Disconnect the P59 and P60 connectors from the AC relay module.
5. Remove the 4 screws securing the AC relay.
6. Remove the AC relay module.
7. Install the new AC relay module.

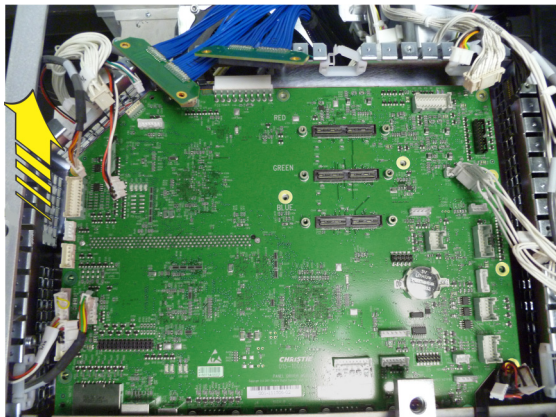


4.5.36 Remove and Replace the LCD Display

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the rear cover:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB board.
 - c. Disconnect the projector keypad harness connector P65.
3. Disconnect the projector keypad connector.
4. Remove the 4 screws securing the keypad cover.
5. Remove the 4 screws from the LCD display.
6. Disconnect the LCD display connector.
7. Remove the LCD status display.
8. Install the new LCD status display.

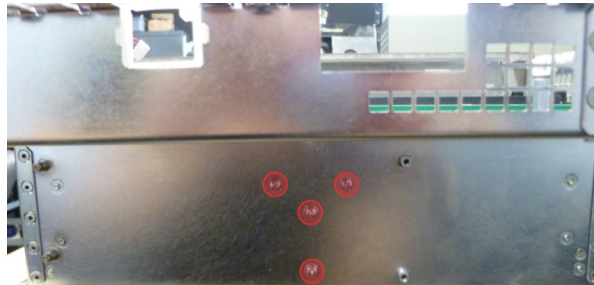
4.5.37 Remove and Replace the Passive Backplane Module

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the CPU High Definition Panel Driver. See [Remove and Replace the Panel Driver](#).
3. Remove SIPC or DIPC. See [Remove and Replace the Input Module](#).
4. Remove the 8 standoffs securing the GPIO, RS-232IN, RS-232OUT, RS-422 communication connectors to the front faceplate.
5. Remove the 13 screws securing the panel driver.
6. Lift up the main connection between the passive backplane and the panel driver.

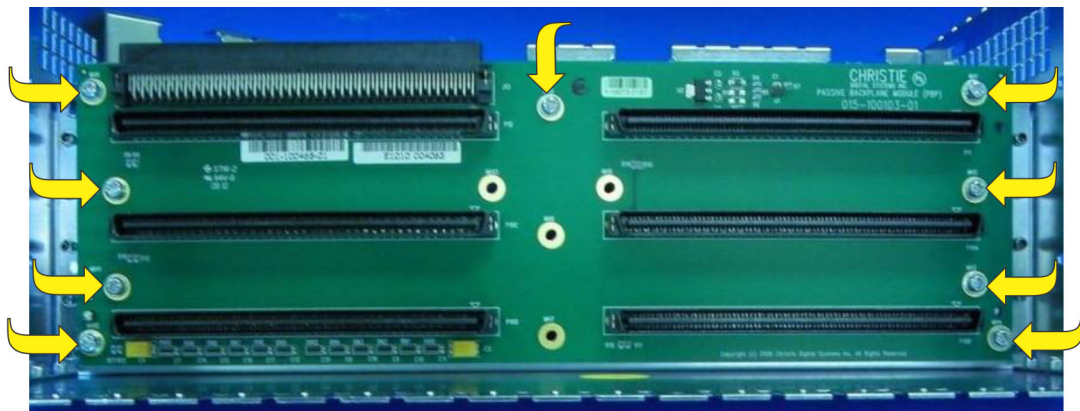


7. Remove the panel driver board.
8. Lift and remove the two side input guides.

9. Remove the 4 front face plate screws.
10. Remove the 3 screws securing the plate underneath the front face plate.
11. Remove the 4 screws securing the middle input guide and then remove it.



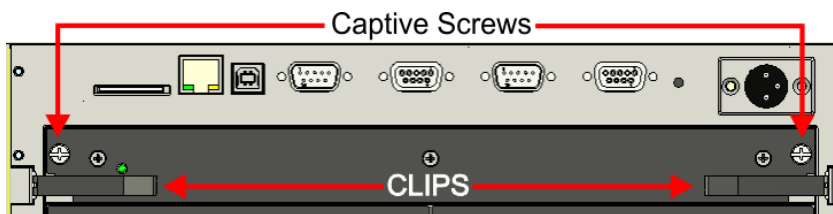
12. Remove the 9 screws securing the passive backplane to the card cage frame.



13. Remove the PC board.
14. Install the passive backplane module following the removal steps, in reverse order.

4.5.38 Remove and Replace the Processor Board

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Unscrew the 2 captive screws.



3. Pull the clips to release the processor board.
4. Slide the processor board out.
5. Replace the processor board.
6. Install the new processor board.

4.5.39 Remove and Replace the Input Module

1. Unscrew the 2 captive screws.
2. Slide the input module out.
3. Install the new input module.

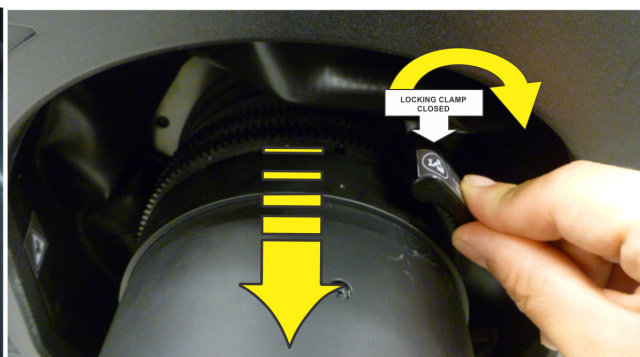
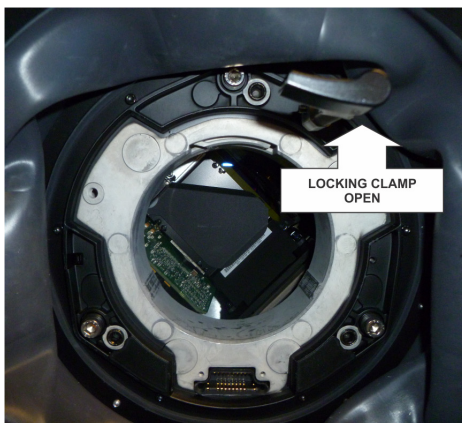


4.5.40 Remove the Lens

1. Remove and set aside the red security screws on lens plate models (if used).



2. Rotate the lens clamp to the OPEN position.



3. Pull the lens straight out.

4.5.41 Install the Lens

1. Remove the rear lens cap from the lens.
2. Rotate the lens locking clamp to the OPEN position.
3. Install the lens straight into the lens mount opening all the way back, without turning. Make sure the lens connector lines up with the connector on the projector.



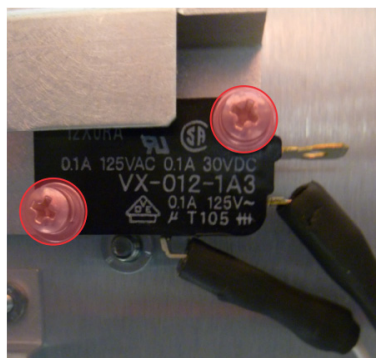
4. Hold the lens flat against the lens mount and then rotate the lens clamp clockwise to lock the lens in position.
5. Tighten the red security screws provided with the lens mount, or hand tighten the lens retaining screws attached to the lens.

⚠ WARNING You must install the lens red security screws or the lens retaining screws if the projector is installed in an elevated position.

6. Remove the front lens cap.

4.5.42 Remove and Replace the Lamp Door Interlock Switch

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
1. Loosen the 2 quick release screws on the lamp door.
2. Disconnect the 2 lamp interlock switch connectors.
3. Remove the 2 screws securing switch and bracket holder.



4. Remove the lamp interlock switch.
5. Install the new lamp interlock switch.

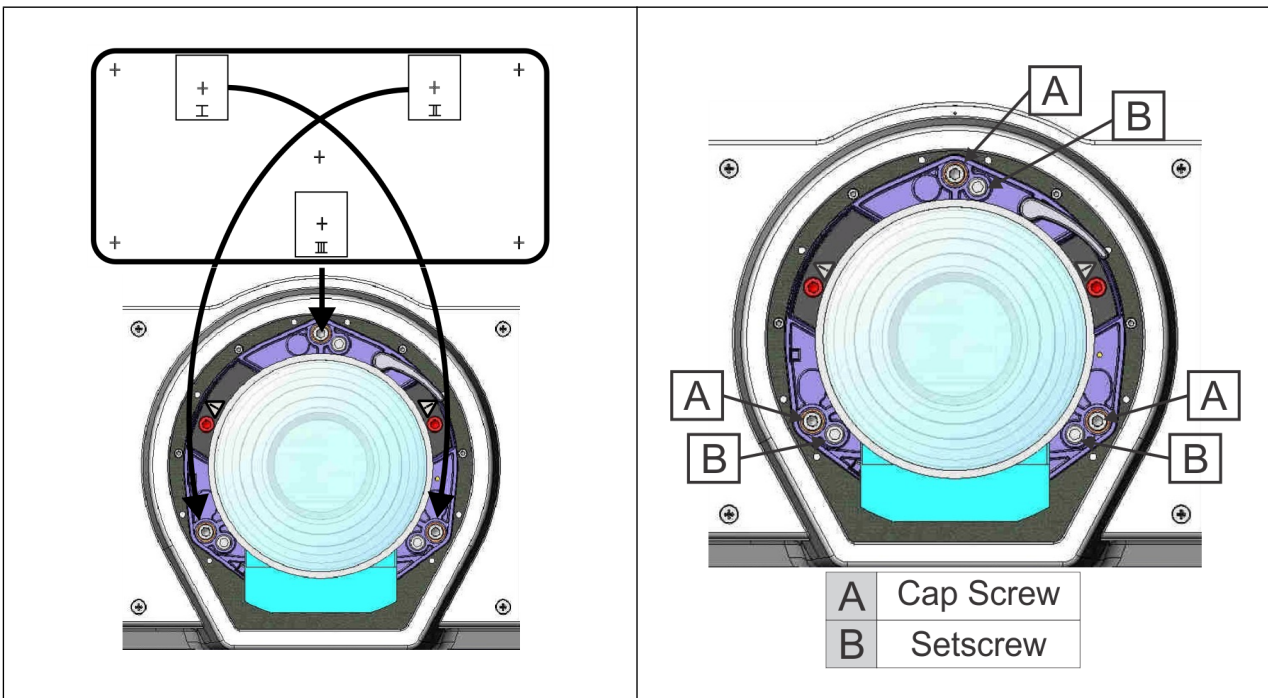
4.5.43 Remove and Replace the Card Cage

⚠ CAUTION Observe all ESD precautions when handling any of the PCBs in the projector.

1. Power down the projector:
 - a. Turn the projector off and allow the projector to cool for a minimum of 5 minutes.
 - b. Disconnect the AC power cord from the rear of the projector.
2. Remove the 8 screws holding the top cover and then remove the top cover and set it aside.
3. Remove the lens side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
4. Remove the lens side small cover that sits behind the handle:
 - a. Loosen the 3 quick-release screws for the cover.
 - b. Remove the cover and set it aside.
5. Remove the removable cross member on the frame:
 - a. Remove the 2 hex head screws.
 - b. Lift and remove the bracket and set it aside.
6. Remove the 9 screws from the panel driver cover.
7. Remove the 6 screws securing the red (P84), green (P85), and blue (P86) connectors and then disconnect the remaining cable connectors.
8. Disconnect all connectors from card cage and remove the wires and cables from the card cage enclosure.
9. Remove the rear skin:
 - a. Loosen the 8 quick-release screws on the rear cover.
 - b. Move the cover away from the rear of the projector to access the keypad PCB.
 - c. Disconnect the projector keypad harness connector P65.
10. Remove the 4 screws securing the front faceplate.
11. Remove the 3 screws securing the side of the air duct.
12. Remove air duct.
13. Remove the 3 screws securing the card cage assembly to the base of the projector.
14. Remove the low voltage power supply.
15. Slide the card cage out.
16. Install the new card cage.

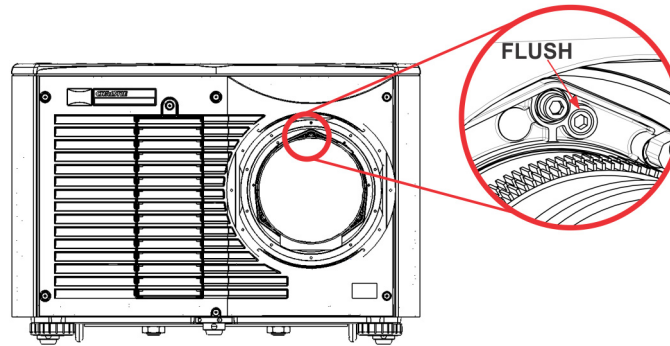
4.6 Boresight Alignment

1. Display the Boresight Test Pattern:
 - a. Press **Test** on the projector keypad.
 - b. Press the **Up** key until **Boresight** displays.
 - c. Press **Enter**.
2. Focus the image on cross-hair pattern I. Evaluate the focus on cross-hair image II and III. If all 3 images are in focus, no further action is required. If boresight is required:
 - a. Loosen the 3 locking setscrews on the lens mount.



- b. Adjust the cap screw until pattern I is in focus with minimal flare.
 - c. Adjust the cap screw until pattern II is in focus with minimal flare.
 - d. Adjust the cap screw until pattern III is in focus with minimal flare.
3. Repeat step b, c, d until 3 patterns are equally focused. If the boresight is acceptable proceed to step 5. If the boresight is not correct, proceed to step 4.
4. Turn the setscrews until they are flush with the front face of the lens mount plate and in contact with the inner lens mount plate.

5. Tighten the setscrews so they will not shift and then check the boresight again.



4.7 Fold Mirror Adjustment

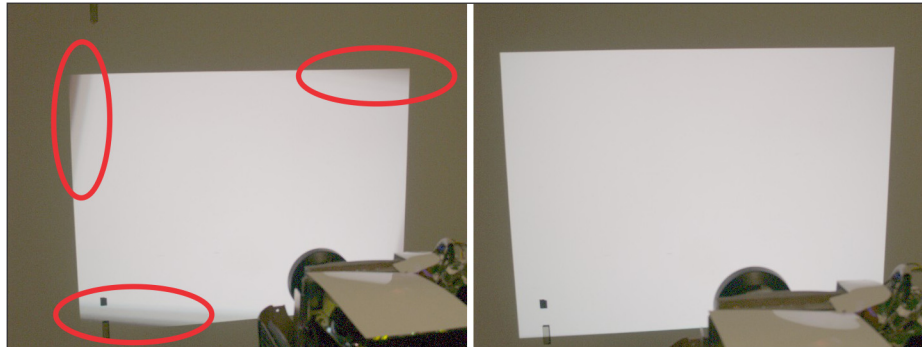
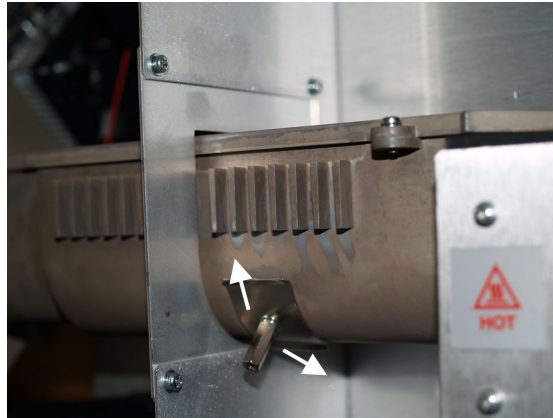
If a corner or edge of the image is missing, the fold mirror might be misaligned with the optical system. To correct this issue:

1. Unlock the 2 setscrews.
2. Turn the pivot screw 90-180 degrees.
3. Adjust both cap screws, to move the fold mirror forward and back.
4. Tighten the 2 setscrews and pivot screw.

4.8 Integrator Assembly Adjustment

1. Remove the side cover:
 - a. Loosen the 6 quick-release screws.
 - b. Remove the cover and set it aside.
2. Turn the projector on.
3. Using the remote, press **Test** for the white test pattern.
4. Locate the integrator adjustment knob.
5. Loosen the knob.
6. Move the knob up and down to create a shadow at each corner of the image.
7. Move the knob forward and backward to get the best focus.

8. Move the knob up and down to square the integrator rod to the projector. Make sure that all the shadows at each corner disappears and take care to maintain the best focus on the shadowed edge while performing this adjustment. **NOTE:** *It may not be possible to eliminate all of the shadows from every corner, in this instance further adjustment of the fold mirror may be required.*



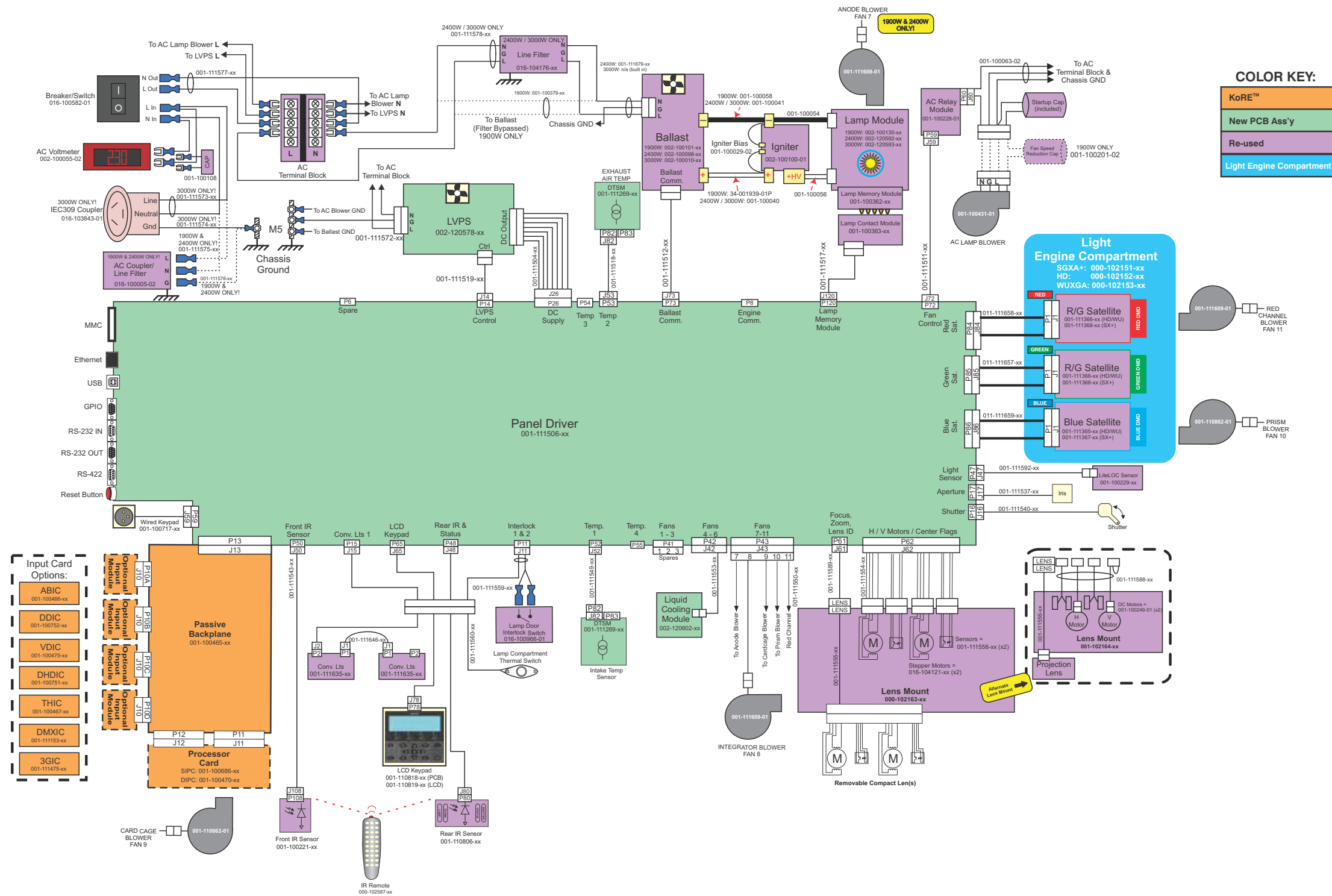
9. Tighten the integrator adjustment knob.

5 Interconnections

This diagram illustrates the electrical connections between internal electronic components.

NOTE: *Part numbers are subject to change.*

5.1 INTERCONNECT DRAWING



6 Specifications

This section provides detailed J Series specifications

6.1 Image Performance

6.1.1 Pixel Format

1080p (H x V square pixels)	1920 x 1080
SXGA+ (H x V square pixels)	1400 x 1050
WUXGA (H Save square pixels)	1920 x 1200

6.1.2 Nominal Brightness

Projector Base Model	Lamp Power	Brightness (ANSI)	Brightness (Center)
3000W 1080p	3000W	18,000	20,000
2400W 1080p	2400W	14,000	15,400
1900W 1080p	1900W	12,000	13,200
3000W SXGA+	3000W	20,000	22,000
2400W SXGA+	2400W	16,000	17,600
1900W SXGA+	1900W	12,500	13,750
3000W WUXGA	3000W	18,000	20,000
2400W WUXGA	2400W	14,000	12,400
1900W WUXGA	1900W	12,000	13,200

6.1.3 Contrast

ANSI: 16 pt. checker pattern on black screen	650:1 typical
Full field: 9 pt. average ON/OFF with background light subtraction	1500: 1 typical

6.1.4 Luminance Uniformity

90% Brightness Uniformity	SXGA+
80% Brightness Uniformity	1080p, WUXGA

6.1.5 Gamma

Default Gamma (all points from 10 to 90 IRE)	2.2 + linear segment
Adjustable Gamma range	1.0 to 3.0

6.1.6 Grayscale/Color Resolution

Resolution 10 bits (non-linear) min. (Gamma encoded)

6.1.7 Color Temperature

White Default CCT	7250K ±950K
Range of Adjustment	3200 K - 9300 K
Tracking (deviation from normal over full range from 10 – 100 IRE)	±500 K max
Stability (during rated lamp life)	±500 K max

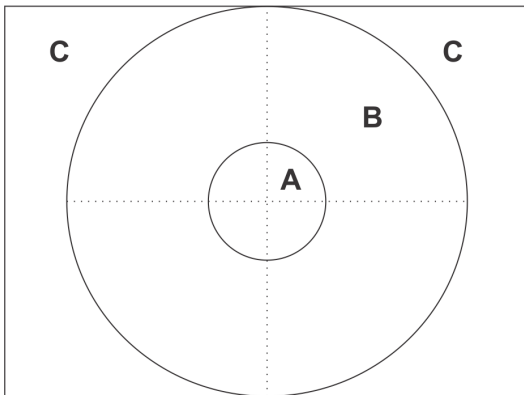
6.1.8 Convergence

Convergence zones A, B, C are as defined:

- a. Zone A has a diameter ¼ of the image height.
- b. Zone B has a diameter of full image height.

All specified convergence errors are between any two colors after a minimum warm-up of 30 minutes.

Convergence is specified with a 1.4-1.8 HD lens (part number 118-100112-01) in the 1.4:1 position with zero offset. Boresight alignment must be adjusted for zero angular error. **(NOTE: Convergence error includes the effects of lateral color in the projection lens. Measurements must be done on horizontal and vertical test pattern lines that intersect the center of the image).**



(Figure applicable to both 1080p and SXGA+)

Measurement Area	Maximum Convergence Error (Pixels)
Zone A	1/4
Zone B	1/2
Zone C	3/4

6.1.9 Blemishes

Red screen	No blemishes
Green screen	No blemishes
Blue screen	No blemishes
White screen	No blemishes
Black screen	No blemishes

6.1.10 Pixel Defects

Red	0 bright, up to 1 dark
Green	0 bright, 0 dark
Blue	0 bright, up to 2 dark non-adjacent

6.2 Feature Set

6.2.1 Airflow

Air intakes	Front of projector
Air exhaust	Hot lamp exhaust: rear of projector

6.2.2 Air Filters (Optional)

Filter media types	Dust filter
Filter access	Fog filter
	Service-interchangeable via access panel

6.2.3 Dust Sealing

Dust sealed DMDs	Gasket sealed
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6.2.4 ILS (Intelligent Lens System)

Motorized lenses and lens mount with position encoding	Zoom, focus, horizontal and vertical offsets
Accuracy	±2 pixel
Manual control	1/3 pixel fine movement control per button press on any applicable User Interface (e.g., remote).
Calibration	Automatic calibration on lens change detection
User Configurable Calibration Modes	Automatic calibration on power-up
Calibration time	Manual calibration
Bore sight	< 10 seconds when required
Travel time stop to stop	3-point +/- 4 degrees adjustment and lockable without removing covers
Zoom and Focus	10 seconds nominal (depends on lens type)
Offsets	5 seconds (nominal (depends on lens type)
Manual Lens Movement	Manual over-ride permissible for zoom and focus

6.2.5 Projection Lens Compatibility

Lens type Reverse Telecentric Internal-focus
 Motorized zoom and focus with position feedback

NOTE: Calculated Throw distance values are subject to a ±5% lens tolerance

Lens Throw Ratio

Lens Description		Part Number	Throw Ratio		
			SXGA+	HD	WUXGA
Fixed	Lens ILS 0.73:1SX+/0.67:1HD	118-100110-xx	0.73	0.67	0.67
	Lens ILS 1.2SX+/1.1HD	118-100117-xx	1.2	1.1	1.1
Zoom	Lens ILS 1.25-1.6SX+/1.16-1.49HD	118-100111-xx	1.25-1.6	1.16-1.49	1.16-1.49
	Lens ILS 1.5-2.0SX+/1.4-1.8HD	118-100112-xx	1.5-2.0	1.4-1.8	1.4-1.8
	Lens ILS 2.0-2.8SX+/1.8-2.6HD	118-100113-xx	2.0-2.8	1.8-2.6	1.8-2.6
	Lens ILS 2.8-4.5SX+/2.6-4.1HD	118-100114-xx	2.8-4.5	2.6-4.1	2.6-4.1
	Lens ILS 4.5-7.5SX+/4.1-6.9HD	118-100115-xx	4.5-7.5	4.1-6.9	4.1-6.9
	Lens ILS 7.5-11.2SX+/6.9-10.4HD	118-100116-xx	7.5-11.2	6.9-10.4	6.9-10.4

6.2.6 Automatic Fans

Temperature sensitive fan speed control Fans automatically adjust to required speed to maintain projector at proper operating range as function of outside ambient temperature.

Standby All fans are off, except integrated LVPS fan, when projector is in standby.

Temperature range 5 to 40 degrees C

Transition steps Smooth speed transitions with no abrupt audible changes.

6.2.7 Constant Lamp Output Management

(Factory Optional) Yellow notch filter Fixed filter to enhance color space

LiteLOC™ Automatically adjusts lamp output to maintain constant lumens setting within operating range of lamp.

6.2.8 Shutter

Open
Closed

Light transmitted to projection lens
All light blocked - no light on screen

6.2.9 Lamps

Ushio Xenon bubble lamp system

Lamps are accessed from the rear of the projector

6.2.10 Status LED

Status LEDs	#	LED STATES
Lamp	1	Off – Lamp off Yellow – Lamp time has expired and lamp should be replaced Green – Lamp is on and operating correctly Flashing red – Lamp has malfunctioned Flashing yellow – Lamp door is open
Comm	2	Flashing red – Error has occurred. Details are displayed on the status display
Status	3	Off – AC power is off Yellow – AC is present but projector is in standby Green – Power is powered up and operating normally Flashing red – Error has occurred. Details are displayed on the status display
Shutter	4	Green – Shutter is open Yellow – Shutter is closed

6.2.11 Electronics/SW

FEATURE

Image Device
 Video Format Re-Sizing

 Picture in Picture
 Built-in 2D keystone and geometry correction
 Auto-scaling
 Auto-de interlacing
 Edge blending
 Warping
 Tiling (max array size)
 Blanking and Image positioning
 Brightness, contrast, color, and uniformity
 Image orientation
 Electronics HW access
 Number of option cards
 Number of processor cards
 Number of option slots
 Arbitrary Gamma

COMMENTS

Supports 3 chip DMD operation
 All video formats can be resized to fill screen either horizontally or vertically while maintaining aspect ratio
 Supported
 Supported
 Supported
 Supported
 Supported
 Supported
 3x3 Standard Image Processor & 2x2 Dual Image Processor
 Supported
 User settable control
 Can display image front/rear screen, normal/inverted (ceiling)
 Mounted at the back of the projector
 6 user inter-changeable – hot swappable
 2 user inter-changeable
 4, option cards; 1, processor card
 User definable gamma curves

6.3 Image Processor Performance

Min input pixel rate	13 Mpix/s	
Max input pixel rate	165 Mpix/s Standard Mode	Standard Image Processor
	330 Mpix/s High Bandwidth mode	Dual Image Processor
Max input resolution	2048x1536 (QXGA)	
Min input resolution	640x400	
Max input frame rate with Dual Image Processor Card	120Hz at 2048x1080	Dual Image Processor (DIPC) required
	92Hz at 2048x1536*	* QXGA with sources that can output minimum blanking
Max input frame rate with Standard Image Processor Card Processing	50Hz at 2048x1536 (QXGA)	*With sources that can output minimum blanking, otherwise lower vertical rates
	10 bit throughout *	* Except Dual-DVI input in dual-link mode (dual 8 bit input paths into 10 bit processing)
Source switching time	Switch time 1 second	Low bandwidth signals
	Switch time 3 seconds	3D signals

6.4 Input (Source Signal) Compatibility

6.4.1 Analog (Only) Input

Connectors	5 female BNC, 75 Ohm R/Pr G/Y B/Pb H/C V
Color spaces/signal types	RGB YPbPr
A/D conversion	10 bits

6.4.2 Twin HDMI Input

Connectors	2 independent HDMI inputs type A 2 loop-out HDMI connectors type A
Color spaces/signal types	RGB YCbCr (4:2:2) YCbCr (4:4:4) HDCP support HDMI 1.3 supported (not including audio) except: 12 bit color dithered to 10 bits; 16 bit color not supported HDMI 1.4a (Mirage Models)

6.4.3 Dual Link DVI Input

Connectors	1 dual link DVI-I 1 analog 15-pin VGA
Color spaces/signal types	HDCP support
A/D conversion	10 bits for single link DVI input 8 bits for dual link DVI inputs
Frequency	165 MPixel/s analog 330 Mpix/s Dual link DVI (requires DIPC)

6.4.4 Video Decoder Input

Connectors	2 S-Video 4-pin miniature DIN 4 BNC, 75 Ohm 2 independent decoder channels for PIP
Color space/Signal types	Composite video Component video (SD and ED only) S-video
Video Standards	NTSC, NTSC 4.43, PAL, PAL M, PAL N, PAL 60, SECAM
A/D conversion	10 bits

6.4.5 Dual 3G/HD/SD - SDI Input

Connectors	BNC, 75 Ohm
Color spaces/signal types	Dual HD input SDI, HDSDI, 3GHz

6.5 Control Signal Compatibility

6.5.1 Projector Control

Number of transmitters	2 IR
Modulation frequency	Dual frequency (38 kHz)
Range	Min 35 m
Wired Keypad	3 pin XLR Connection
Max cable length	30 m (not supplied)

6.5.2 Control Receiver

Number of sensors	1 front, 1 rear
Coverage	130 degrees coverage in-line with lens at 3 m distance
Modulation (carrier) frequency	Dual frequency (38 kHz)

6.5.3 RS-232

Number of ports	2
Connector	1 female 9-pin Dsub (IN) 1 male 9-pin Dsub (OUT)
Max bit rate	115.2 kbps
Flow control	Xon/Xoff

6.5.4 RS-422

Number of ports	1
Connector	1 female 9-pin Dsub
Max bit rate	115.2 kbps
Power output	12 V \pm 5% @ 400mA maximum

6.5.5 Ethernet

Number of ports	1
Standard	10/100 Base-T
Connector	Female RJ-45

6.5.6 USB 2.0 Device Port

Number of ports	1
Standard	Not supported (non-functional)

6.5.7 GPIO

Number of I/O Lines	7
Connector	Male 9-pin Dsub
Output sink current (logic low)	100 mA @ 1V typical
Power output	12 V \pm 5% @ 400mA maximum

6.5.8 DMX512 Interface

Connectors	Two 5-pin XLR one male (input) and one female (output)
DMX Chain Termination	Configurable via software

6.5.9 Built-In Keypad and Display

Key type	Soft- keys
Display type	Graphics LCD backlight

6.5.10 Convenience Light

Illumination for Input Panel	Provided by a dual-strip dedicated switch on the built-in keypad.
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6.6 Power Requirements

Parameter	Lamp Power	Requirement
Rated Voltage	3000W	200 VAC - 240 VAC
	2400W	200 VAC - 240 VAC
	1900W	200 VAC - 240 VAC
Rated Current	3000W	20 A
	2400W	16 A
	1900W	14 A
Line Frequency	All	50/60 Hz
AC Input Coupler	3000W	32 A, 250 VAC, IEC 309
	1900W	20 A, 250 VAC, IEC 320-C20
	2400W	20 A, 250 VAC, IEC 320-C20
North America Power Cord	3000W	10AWG type SJT with plug, NEMA L6-30P, 30A
	2400W	12AWG type SJT with plug, NEMA 6-20P, 20A
	1900W	12AWG type SJT with plug, NEMA 6-20P, 20A
Inrush Current	All	60 A max
Maximum Power Consumption	3000W	4000W
	2400W	3200W
	1900W	2800W

6.6.1 Lamp Specification

Type	Lamp Model	Bubble Lamp
Power Range	3000W	2000W min., 3000W max (software adjustable)
	2400W	1500W min., 2400W max (software adjustable)
	2000W	1200W min, 1900W max (software adjustable)
Rated lamp life to 50% brightness (2 hours on, 15 minutes off duty cycle)	3000W	750 hrs. min
	2400W	750 hrs. min
	2000W	1000 hrs. min
Warm-up time (to full output) Operating position		20 minutes max
		Full rotation allowed about the lamp axis, some portrait mode allowed, see Manual text

6.7 Physical Specifications

6.7.1 Size

Maximum product dimensions (L x W x H) (with lens removed)	815mm (32") x 621mm (24.5") x 419mm (16.5")
Maximum shipping dimensions (L x W x H)	1041mm (41") x 825mm (32.5") x 749mm (29.5")

6.7.2 Adjustment

Product Alignment	50mm (2") of vertical adjustment on 2 front feet and 2 rear feet.
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6.7.3 Weight

Maximum product weight 3.0kW model (with lens removed)	72.5kg (160lb.)
Maximum shipping weight 3.0kW model (includes packaging)	91kg (200lb.)

6.8 Reliability and Serviceability**6.8.1 Reliability**

MTBF – excluding consumable components	11,000 hrs
Consumable components	Air filters, fans, lamps

6.8.2 Serviceability

MTTR, average	30 min
Time to replace any option card	1 minute maximum
Time to replace lamp	1 minute maximum
Time to replace projection lens	30 seconds maximum
Time to replace air filter	1 minute maximum

6.9 Environment**6.9.1 Temperature/Humidity/Altitude**

Operating temperature range	5 to 40 degrees C
Storage temperature range	-40 to 70 degrees C
Humidity range	10% to 80%, non condensing
Operating Altitude	10,000 ft. maximum

6.10 Accessories and Service Components

Product Name	Part Number	Sold With Product	Sold Separately
Analog Input	108-309101-XX	X	X
Dual Link DVI Input	108-312101-XX	X	X
Video Decoder Input	108-310101-XX	X	X
Dual 3G/HD/SD-SDI Input Card	108-313101-XX	X	X
Twin HDMI Input	108-311101-XX	X	X
DMX512 Interface	108-314101-XX	X	X
Dust Filter		X	X
Fog Filter			X
Lens ILS 0.73:1SX+/0.67:1HD	118-100110-XX		X
Lens ILS 1.25-1.6SX+/1.16-1.49HD	118-100111-XX		X
Lens ILS 1.5-2.0SX+/1.4-1.8HD	118-100112-XX		X
Lens ILS 2.0-2.8SX+/1.8-2.6HD	118-100113-XX		X
Lens ILS 2.8-4.5SX+/2.6-4.1HD	118-100114-XX		X
Lens ILS 4.5-7.5SX+/4.1-6.9HD	118-100115-XX		X
Lens ILS 7.5-11.2SX+/6.9-10.4HD	118-100116-XX		X
Lens ILS 1.2SX+/1.1HD	118-100117-XX		X
Lens ILS 1.2SX+/1.1HD	118-101103-XX		X
ILS Lens Conversion Kit	108-331108-XX		X
Lens Conversion Kit			X
CT MOUNT Xe Bubble	132-112105-XX		X
Kit Upgrade to Mirage			X
YNF Upgrade	132-110103-XX		X
AutoSTACK	108-308101-XX		X
Handle	104-108101-XX		X
Edge Blending CT	104-102101-XX		X
Remote IR Sensor	104-106101-XX		X
Portrait Adapter	118-116109-XX		X

6.11 Regulatory

6.11.1 Safety

- CAN/CSA C22.2 No. 60950-1-07 2nd Edition
- UL 60950-1, 2nd Edition
- IEC 60950-1:2005, 2nd Edition
- EN60950:2006 + A11:2009

6.11.2 Electro-Magnetic Compatibility

Emissions

- FCC CFR47, Part 15, Subpart B, Class A - Unintentional Radiators
- CISPR 22: 2008-09/EN55022: 2006 + A1:2007 Class A - Information Technology Equipment

Immunity

- CISPR 24: 1997 +A1:2001+A2:2002/ EN55024: 1998 +A1:2001 +A2:2003 EMC Requirements - Information Technology Equipment

6.11.3 Environmental

The product must conform to:

- EU Directive (2002/95/EC) on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendment(s).
- EU Regulation (EC) No. 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH) and the applicable official amendments.
- EU Directive (2002/96/EC) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s).
- China Ministry of Information Industry Order No.39 (02/2006) on the control of pollution caused by electronic information products, the hazardous substances concentration limits (SJ/T11363-2006), and the applicable product marking requirement (SJ/T11364-2006).

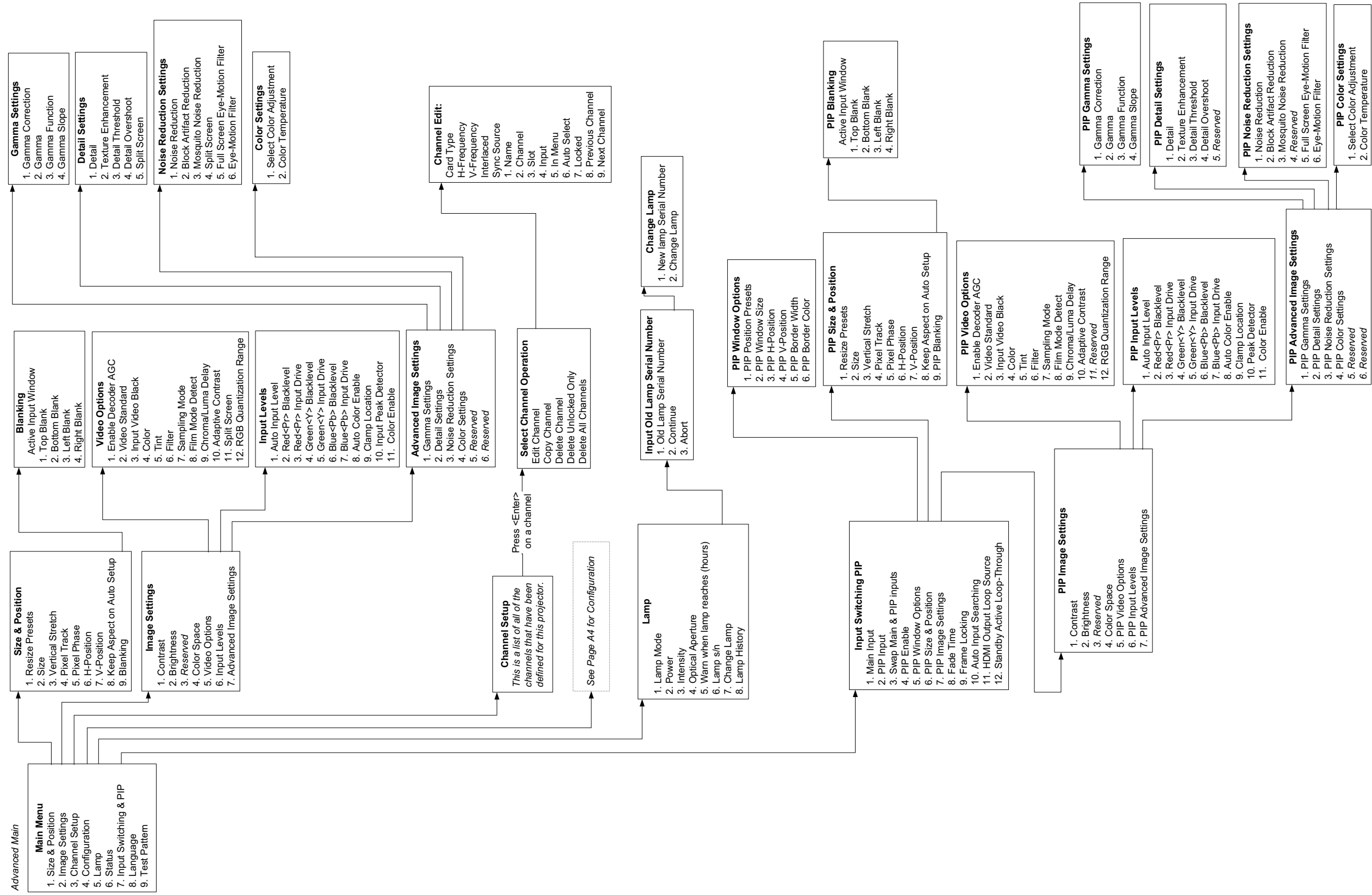
6.11.4 Marking

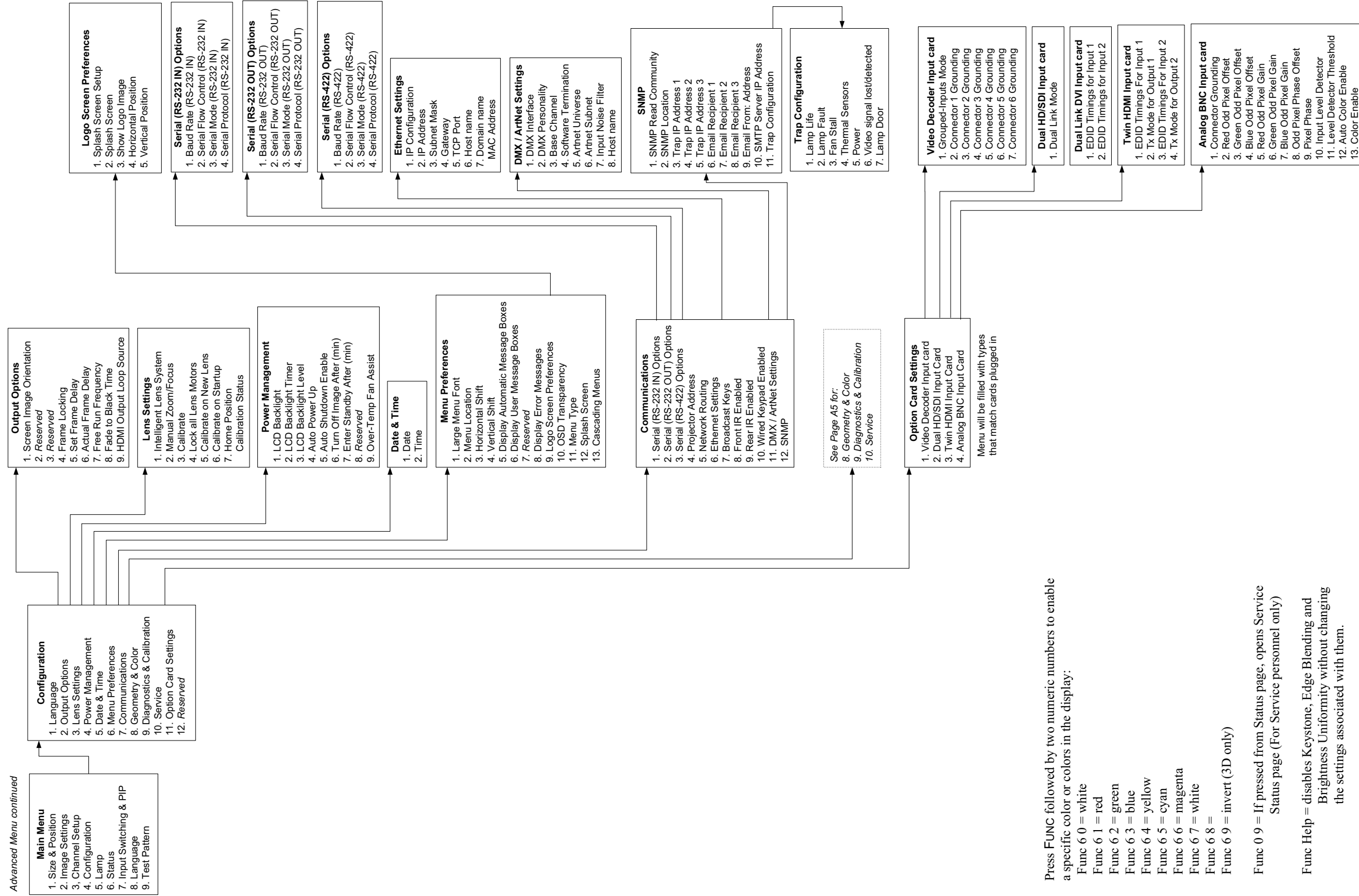
This product shall conform to all relevant Canadian, US, and European directives, standards, safety, health and environmental concerns and bears the following markings at product launch:

- UL
- CE
- RoHS
- WEEE
- Future International Certifications to include: CCC, KC, PSE, c-tick, Gost-R, South Africa
- International packaging recycling mark requirements:
- EU Directive (94/62/EC) on packaging and packaging waste;
- China packaging recycling mark standard (GB18455-2001);
- Korea extended producer responsibility (EPR) separate discharge mark system under the act on the promotion of resource saving and recycling (2003);
- United States society of the plastics industry (SPI) resin identification code (1988);
- ISO standards on marking of plastics (11469:2000, 1043-1:2001, 1043-2:2000, 1043-3:1996, and 1043-4:1998).

A Appendix Projector Menus

A.1 J Series Menu Tree





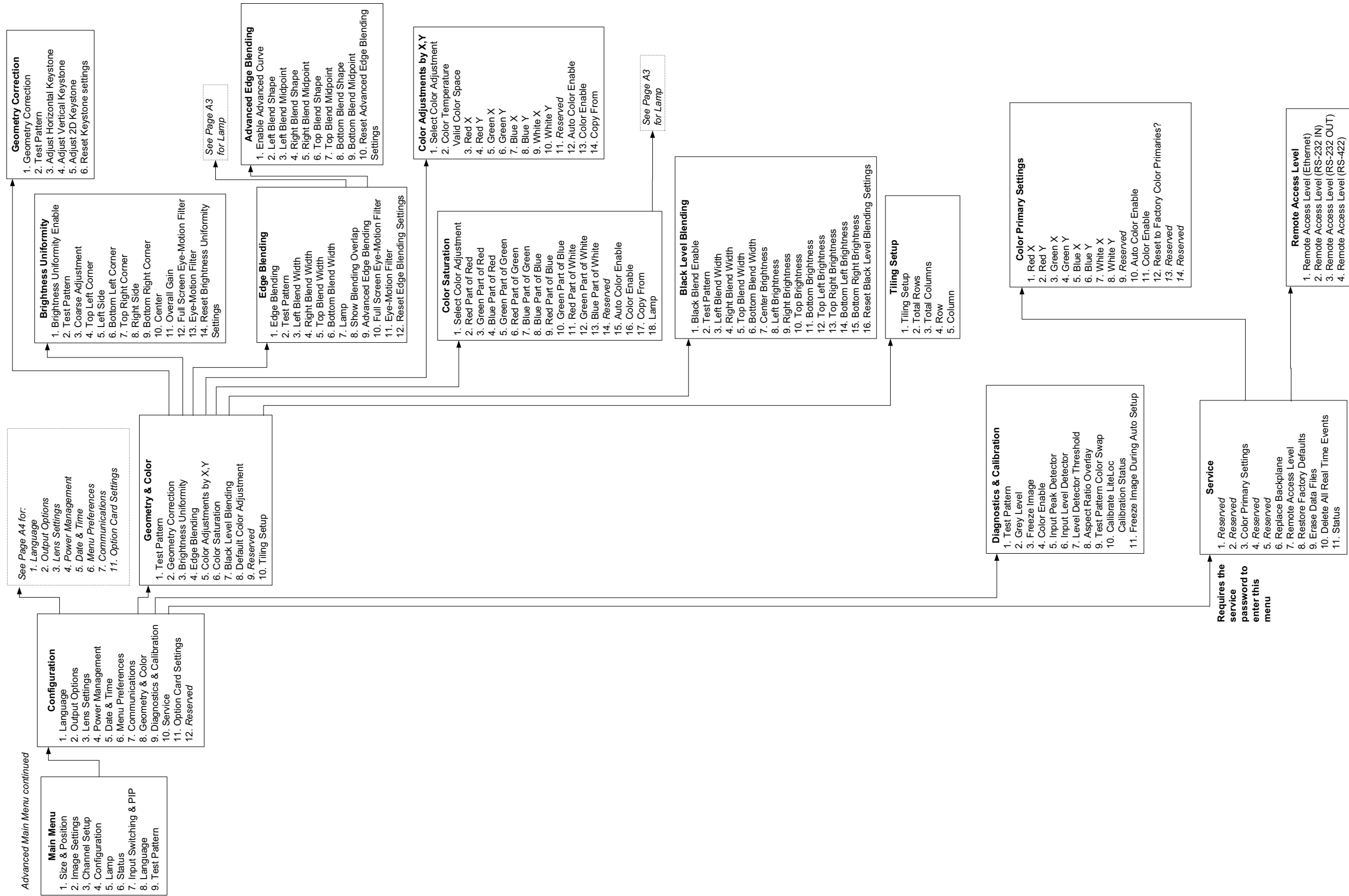
Press FUNC followed by two numeric numbers to enable a specific color or colors in the display:

- Func 6 0 = white
- Func 6 1 = red
- Func 6 2 = green
- Func 6 3 = blue
- Func 6 4 = yellow
- Func 6 5 = cyan
- Func 6 6 = magenta
- Func 6 7 = white
- Func 6 8 =
- Func 6 9 = invert (3D only)

Func 0 9 = If pressed from Status page, opens Service Status page (For Service personnel only)

Func Help = disables Keystone, Edge Blending and Brightness Uniformity without changing the settings associated with them.

Advanced Menu continued



Corporate offices

USA – Cypress
ph: 714-236-8610
Canada – Kitchener
ph: 519-744-8005

Worldwide offices

United Kingdom
ph: +44 118 977 8000
France
ph: +33 (0) 1 41 21 00 36
Germany
ph: +49 2161 664540

Eastern Europe
ph: +36 (0) 1 47 48 100
Middle East
ph: +971 (0) 4 299 7575
Spain
ph: + 34 91 633 9990

Singapore
ph: +65 6877-8737
Beijing
ph: +86 10 6561 0240
Shanghai
ph: +86 21 6278 7708

Japan
ph: 81-3-3599-7481
South Korea
ph: +82 2 702 1601

